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FRANK P. FOSTER, M.D.

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DR. PRUDDEN'S ARTICLE.



FIG. 1.—Rabbit's lung 12 days after the injection of a broth culture of the tubercle bacillus through the trachea.



FIG. 2.—Rabbit's lung 41 days after the injection of a broth culture of the tubercle bacillus through the trachea.



FIG. 3.—Rabbit's lung 11 days after the injection of a broth culture of the tubercle bacillus through the trachea.



FIG. 4.—Rabbit's lung 36 days after the injection of a broth culture of the tubercle bacillus through the trachea. Formation of cavities.



FIG. 5.—Rabbit's lung injected with broth culture of tubercle bacillus, followed after 22 days by injection of *Streptococcus pyogenes*. Death after 24 hours. Early stage in the formation of cavities.



FIG. 6.—Rabbit's lung injected with broth culture of tubercle bacillus, followed after 28 days by injection of *Streptococcus pyogenes*. Killed after 13 days. Formation of bronchiectatic cavities.



FIG. 7.—Rabbit's lung injected with broth culture of tubercle bacillus, followed after 28 days by injection of *Streptococcus pyogenes*. Killed after 13 days. Small cavity and areas of consolidation.



FIG. 8.—Rabbit's lung injected with broth culture of tubercle bacillus, followed after 23 days by injection of *Streptococcus pyogenes*. Killed after 7 days. Small communicating cavities.

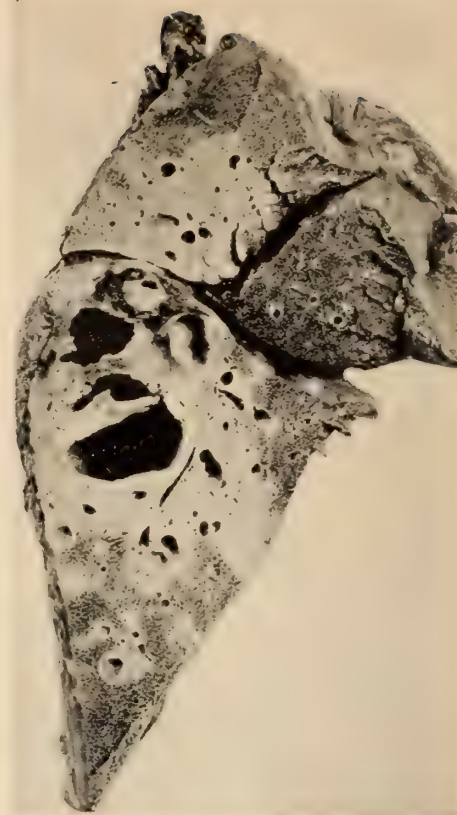


FIG. 9.—Rabbit's lung injected with broth culture of tubercle bacillus, followed after 28 days by injection of *Streptococcus pyogenes*. Killed after 7 days. Large and small cavities and areas of consolidation.



FIG. 10.—Rabbit's lung injected with broth culture of tubercle bacillus, followed after 28 days by injection of *Streptococcus pyogenes*. Killed after 13 days. Numerous communicating cavities.

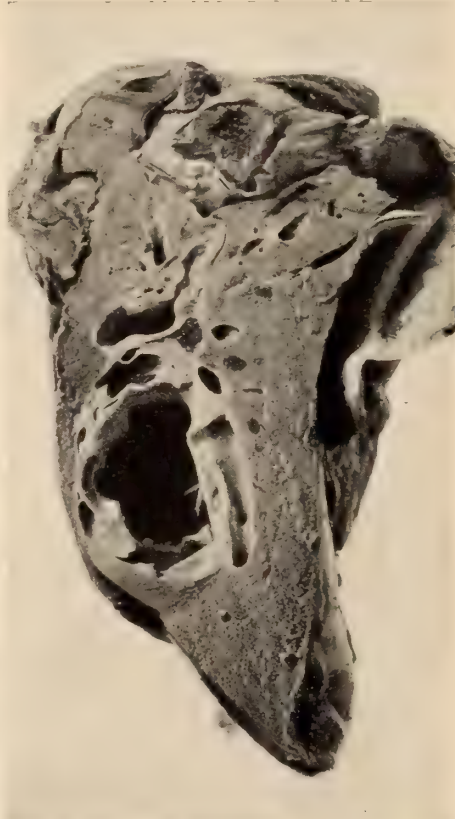


FIG. 11.—Rabbit's lung injected with broth culture of tubercle bacillus, followed after 28 days by injection of *Streptococcus pyogenes*. Death after 5 days. Large cavity.



FIG. 12.—Rabbit's lung injected with broth culture of tubercle bacillus, followed after 28 days by injection of *Streptococcus pyogenes*. Death after 5 days. Large cavities, with suppuration in their walls.

Original Communications.

CONCURRENT INFECTIONS AND THE FORMATION OF CAVITIES IN ACUTE PULMONARY TUBERCULOSIS.

AN EXPERIMENTAL STUDY.

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THE discovery of the tubercle bacillus and the establishment of its causal relationship to tuberculosis at once made possible a readjustment of our knowledge of the tubercular lesions of the lungs. This has led to a great simplification of our conceptions regarding the protean phases, topographical, structural, and clinical, of pulmonary phthisis. In order to make entirely clear the standpoint from which the experiments recorded in this paper were undertaken, it seems necessary to briefly state some fundamental facts about the tubercle bacillus and its mode of dissemination in the lungs.

The living tubercle bacillus, lodged or growing in the body, is capable of producing a series of more or less distinct, but often associated, sets of changes. In the first place, it may cause simple *proliferation of epithelial or connective-tissue cells*. These new cells may collect in larger or smaller masses about the bacilli, or form and gather at some distance from them, and may vary in shape and character with the cells from which they develop and the conditions under which they collect. But they show no tendency to share in the formation of organized tissue.

Or, on the other hand, various kinds of cells under the immediate influence of the tubercle bacillus, or of its diffusible products, may be stimulated to the formation of new organized tissue—that is, a tissue consisting of cells and a new living stroma, in which blood-vessels are not apt to develop. This phase of the action of the tubercle bacillus, associated with the formation of new cells and tissues, may be called *productive inflammation*.

The tubercle bacillus is further capable either of inducing changes in the walls of the smaller blood-vessels in its vicinity, or of attracting leucocytes by chemotaxis, or both, in such a way as to produce the phenomena of an *exudative inflammation*. These exudates may be exactly similar to those induced by several other well-known micro-organisms—namely, serum, fibrin, and pus.

The tubercle bacillus is capable also of serious *interference with local blood supplies*, either by inducing an obliterating inflammation of blood-vessels, or by their partial or total closure through new-formed tissue about them.

Furthermore, the tubercle bacillus is capable of inducing in the original tissues in which it has been lodged, in the new cells, and in the new tissues which have formed under its influence, and in the formed exudates which it has gathered, a peculiar kind of necrosis called *coagulation necrosis*, or cheesy degeneration.

Finally, under certain conditions, the tubercle bacillus is capable of inducing serious systematic disturbances of

the body at large, which are in the nature of septic *intoxications*, and which, though without lesions at present demonstrable, may be highly detrimental to the welfare of the affected individual.

Briefly summarized, then, the effects which may be induced in the living body by the tubercle bacillus are cell proliferation, productive and exudative inflammation, local obliteration of blood-vessels, necrosis, and septic intoxication. These effects may all vary within wide limits with the virulence of the infecting germs and the susceptibility of the affected individual.

While it is not yet possible to definitely assign all these various but associated effects of the tubercle bacillus upon the tissues to particular elements in its organization, or to special products in its metabolism, a good start has been made in this direction.

A host of studies on its soluble metabolic products (tuberculin) has shown, at least, that this germ is capable of producing as it grows soluble substances, which readily excite exudative inflammation in vulnerable forms of tissues, and which act as powerful systemic poisons on the human body.

On the other hand, it has been shown* that, after having been killed by prolonged boiling, and freed from soluble material by repeated washings, the dead bodies of the tubercle bacilli are, when introduced into various parts of the bodies of animals—lung, liver, kidney, etc.—not only markedly pyogenic, but are also capable of stimulating the tissue cells of the part in which they lodge to a production of new cell masses and tissues similar in structure to many of those produced by the living germs.† Some substance or substances, then, contained in the dead bodies of the tubercle bacilli are capable of inducing in the body both exudative and productive inflammation.

Let us now turn to the special effects which the tubercle bacillus may produce in the lungs. It is well known that there are three distinct ways in which the tubercle bacillus may become distributed in the lungs, and that the differences in the topographical as well as the minute structural features of the lesions in different cases of pulmonary tuberculosis are in large measure dependent upon

* Prudden and Hodenpyl. *New York Medical Journal*, June 6 and 20, 1891.

† This effect of the bodies of dead tubercle bacilli upon living tissue cells is peculiar to this germ, and can not, as Baumgarten (*Jahresbericht ü. d. Forts. in d. Lehre von path. Mikroorganismen*, 1891, p. 779) has recently asserted, be produced by other foreign bodies, such as carbolized thread, bits of rabbit's hair, etc. The writer is quite familiar with the effects in the tissues of such foreign bodies as Baumgarten mentions, and has not only repeated the earlier experiments on this subject, but has widely extended them so as to embrace the dead bodies of many species of bacteria. These various substances do indeed induce the formation of new tissue with more or less frequent giant cells. But these new structures are by no means so closely identical with the real infectious tubercles as are those formed under the influence of the dead proteids of the tubercle bacillus, and can not fairly be regarded as their analogues. A few actual comparative experiments in this direction would probably convince the skeptical of the peculiarity in this respect of the albuminous constituents of the dead bodies of the tubercle bacilli.

these modes of distribution. The three ways in which tubercle bacilli may be disseminated in the lungs are: (1) through the blood-vessels; (2) through the lymphatics; (3) through the respiratory passages.

When the distribution of the tubercle bacilli occurs through the blood-vessels alone by *metastasis* from some primary focus of tubercular inflammation, the resulting lesions are usually in the form of the small discrete masses of new-formed cells and tissue which are called miliary tubercles. Similar results may follow the distribution of the bacilli through the lymphatics. These results of the metastatic distribution of tubercle bacilli through the lungs may occur as the sole form of the tubercular lesions, and the tubercles may become larger and coalesce or form fresh foci of infection; or miliary tubercles, incited in the same way by the dissemination of the bacilli through the blood or lymph vessels, may occur in connection with other phases of pulmonary tuberculosis.

The third way of distribution of the tubercle bacilli through the lungs is through the respiratory passages from some primary focus of tubercular inflammation which by ulceration or otherwise can discharge bacilli into them. This is distribution by *aspiration*, and this it is which is the dominant factor in many cases of acute phthisis in which large and often widely distributed areas of pulmonary consolidation occur, sometimes with and sometimes without marked tendency to disintegration of tissue and the formation of cavities.

A large part of the cases of acute pulmonary tuberculosis which are called cheesy pneumonia, lobular and lobar phthisis, pneumonic phthisis, etc., are clearly due to the distribution through the lungs by aspiration of material containing tubercle bacilli. This material in many cases comes from old and often small cavities at or near the apex. These cases of so-called acute phthisis are actually tubercular broncho-pneumonia, either lobular or lobar. But the distribution of tubercle bacilli through the respiratory passages may be so slight or so scattered as to give rise to very small foci of tubercular broncho-pneumonia, and these small foci form one of the structural varieties of miliary tubercle.

Before the discovery of the tubercle bacillus, the morphological study of pulmonary tuberculosis led to arbitrary classification of the lesions into groups merging into one another, and varying in their character and limitations with the point of view and experience of each observer. On the whole, it may be said that, apart from the marked tendency to cheesy degeneration and the formation of cavities, which is so often evident, two main sets of lesions are dominant in acute pulmonary tuberculosis: First, new organized cellular tissue, either in the form of miliary tubercles or larger foci or masses; and second, exudations in the air spaces of the lungs, either fluid, fibrous, or cellular, presenting the minute characters of such exudative pneumonias as may arise from various causes.

The experimental studies on the tubercle bacillus and its effects on the living lung tissues of animals soon make it clear that the tubercle bacillus can not only cause the formation in the lungs of the new organized tissue which in its various forms and marked tendency to cheesy de-

generation we are wont to call tubercular, but also that it may to a certain extent at least be responsible for a simple exudative pneumonia in no wise morphologically characteristic, and for a large proliferation of vesicular epithelium.

To Baumgarten* belongs the credit of having definitely established the essential unity of all the tubercular processes in the lungs. He proved by an extended study of human lesions, and by a most convincing series of animal experiments, that between the metastatic miliary tubercles of the lungs, with their definite outlines, typical size, shape, and distribution, with their unmistakable stamp of productive inflammation on the one hand, and the more diffuse and extensive lesions having the character of exudative inflammation and commonly called cheesy pneumonia, acute phthisis, etc., on the other, there was no fundamental distinction, but there were only quantitative differences.

The great complexity which so often marks the lesions of acute pulmonary phthisis, giving an almost infinite variety to the appearances which they present, and rendering the study of phases and combinations and varieties of lesions an almost endless one, is due to the several factors which we have thus briefly reviewed—namely, (1) the different though associated effects which the tubercle bacillus and its products may have upon the lungs and upon the body at large; (2) the differences in distribution of the bacilli, whether through the blood or lymph channels, or by aspiration through the air spaces; (3) the differences in susceptibility of the affected individuals and the grade of virulence of the particular growth of tubercle bacilli at work; (4) the association in varying ways and proportions with phases of inflammation other than tubercular; (5) the varying involvement of blood-vessels. Each of these factors in all their phases must be the subject of detailed studies before we shall obtain an accurate and exhaustive knowledge of this disease. The two complicating factors in acute pulmonary tuberculosis which are to be especially considered in this paper are the *exudative pneumonia* and the *formation of cavities*.

As our knowledge of the ætiology of the various phases of exudative pneumonia has developed, and we have learned definitely to associate them, some with the *Micrococcus lanceolatus*, some with the streptococcus or the *Staphylococcus pyogenes*, or with other less common forms of germs, the question has presented itself with increasing urgency whether, after all, the exudative pneumonia so often present in pulmonary phthisis, especially in its acute forms, may not be due in many cases to the association with the tubercle bacilli of other kinds of germs. If this were so, would it not be possible more clearly to understand and classify the lesions of pulmonary tuberculosis, and to explain and perhaps influence in a beneficent way its clinical course?

RÉSUMÉ OF THE OBSERVATIONS AND EXPERIMENTS OF OTHERS.—The first systematic studies with the new technique on the bacterial contents of cavities in pulmonary phthisis showed that the tubercle bacillus is not the sole inhabitant of such cavities, and the possible influence of the

* Baumgarten. *Zeits. f. klin. Med.*, Bd. ix and x, 1885.

other germs on the course of the disease was early suggested. Later studies, growing more frequent and precise as their significance became more clear, have already furnished us with data which can no longer be ignored either by the student of the lesions and the causes of pulmonary tuberculosis or by the practitioner of medicine. So far as the presence and action, and in large degree the significance of the tubercle bacillus is concerned, our large stores of knowledge remain essentially unchanged. But we must now prepare ourselves, as it would seem, to look with keener attention to the complicating factors in pulmonary tuberculosis which the at least frequent presence of other pathogenic germs brings into play. It is not necessary for our purpose here to give an account of the early observations made on the presence of bacteria other than the tubercle bacilli in the lungs in pulmonary tuberculosis, or to consider the bacterial flora of the air-passages in general.* We shall only notice briefly those recent observations bearing on this subject which appear most full and significant.

In 1888, Babes † recorded his observations on tubercular lesions of various kinds in fifty-two children. In forty-two of these tubercular lesions he found other bacteria associated with the tubercle bacillus. The most common associated germ was the *Streptococcus pyogenes*, though the *Micrococcus lanceolatus* and others were found. He often found the pyogenic bacteria associated with the tubercle bacillus in tubercular lymph-nodes in the mediastinum. While the tubercle bacillus was confined to the seat of tubercular lesion, the pyogenic bacteria often had a wide distribution in the body. His observations led him to believe that localized tuberculosis in children often becomes active and serious under the influence of the pyogenic microbes, which as he conjectures may either directly modify the action of the tubercle bacillus, or open the way for its distribution in the body.

Again, in 1891, Babes reports his observations in adults bearing on this theme. It seemed to him that the association of other germs with the tubercle bacillus was perhaps less frequent in adults than in children. But in adults the *Staphylococcus pyogenes aureus* and a streptococcus were found with the tubercle bacillus in the cavities in pulmonary tuberculosis. Bacilli and the pyogenic cocci may, he thinks, enter the lymphatics from cavities, and pass to the adjacent lymph-nodes. In nearly all tubercular lungs he finds *Micrococcus lanceolatus* and *Streptococcus pyogenes*. In tubercular inflammation in other parts of the body, the frequent association with the tubercle bacillus of other microbes, especially the pyogenic, is recorded. Attenuated tubercle bacilli not capable of causing lesions in healthy rabbits may, according to Babes, induce tubercular lesions in animals already the victims of suppurating foci. On the other hand, he has found that animals to which

tuberculin was administered were susceptible to the streptococci, pneumococcus, and certain bacilli which had lost their virulence for healthy animals. In rabbits having chronic tuberculosis an injection of streptococci, innocuous to healthy animals, would cause a rapid extension of the tubercular process. While these studies of Babes are recorded without detail by which we might judge of the justice of his conclusions, they not only show that the tubercle bacillus is frequently associated in the body with other pathogenic forms, especially with the pneumococcus, streptococcus, and staphylococcus, but also indicate that their association may have an important effect on the action of each upon the body of their host.

Up to 1892, the bacterial study of the sputum, except so far as the tubercle bacillus is concerned, had thrown little light upon the forms and significance of bacteria in the deeper air-passages and cavities, because the contamination of the material in expulsion through the upper air-passages and mouth was necessarily so great. But now Kitasato,* following a technical suggestion of Koch, found that by repeatedly washing in distilled water the more solid portions of sputum which had originated in cavities or the deeper air-passages, a material could be obtained which could be fairly considered as a representative exudate from the deeper sources in the lungs. Kitasato found that in such washed material from deep regions of the lungs in tuberculosis, the tubercle bacillus was frequently associated with other forms of germs, which in some cases were so abundant and so widely distributed through the body as to justify the conjecture that they must share in producing the phenomena of the disease. Kitasato especially notes the abundance of three forms of bacilli, two different streptococci, and three cocci. But further details fail, as he passed the theme on to Cornet.

Cornet † also gives little detail; but in twenty cases of pulmonary tuberculosis studied, in addition to the tubercle bacillus, in twelve cases streptococcus was most abundant; in two, a non-mobile bacillus; in two, *Bacillus pyocyaneus*. In most cases, *Staphylococcus pyogenes aureus* was present; in some it was the dominant form. In two cases, the streptococcus was found in abundance during an attack of fever, disappearing as the temperature fell.

In 1893, Ortner ‡ recorded his observations on a series of cases presenting various phases of inflammation of the lungs associated with tuberculosis. Cultures and morphological examinations were systematically made. His results in brief, so far as they concern us here, are as follows: In a group of ten cases of tubercular inflammation of the lung with lobular or broncho-pneumonia, in which the simple pneumonic process seemed to predominate, eight showed pathogenic micrococci—*Micrococcus lanceolatus*, or *Streptococcus pyogenes*, or closely allied forms. (These species Ortner does not very closely differentiate.) In another class of similar cases, but in which the tubercular lesion was predominant—seventeen in number—the same pathogenic

* Koch. Die Aetiologie der Tuberculose. Mitth. a. d. kais. Gesundheitsamte, Bd. ii, 1884.—Gaffy. Langenbeck's Archiv, Bd. xxviii, H. 3.—Evans. Virch. Archiv, Bd. cxv, H. 1, 1889.—Von Beser. Ziegler's Beiträge zur path. Anat., etc., Bd. vi, p. 333.—Czaplewski. Untersuchung des Auswurfs. Jena, 1891.

† Babes. Sur les associations bactériennes de la tuberculose. I. Congrès pour l'étude de la tuberculose, 1888.—Babes. Ibid., ii, 1891.

* Kitasato. Zeitschrift f. Hygiene, etc., Bd. xi, p. 441.

† Cornet. Ueber Mischinfection bei Lungentuberculose. Verhlg. d. XI. Congr. f. innere Medicin, p. 425, 1892.

‡ Ortner. Die Lungentuberculose als Mischinfection. Wien, 1893

micrococci were found in fifteen. In one case of acute lobar pneumonia accompanying pulmonary tuberculosis, and in four out of five cases of so-called cheesy lobar pneumonia, identical pathogenic micrococci were found. In fifteen cases of chronic tuberculosis without gross evidence of associated pneumonia, the same cocci were found in five. Finally, the same germs (*Micrococcus lanceolatus*, streptococcus, or forms closely allied to these) were found in eight out of nine cases of acute and subacute miliary tuberculosis. In many of the above examinations the *Staphylococcus pyogenes aureus* or albus was present in moderate numbers, but the streptococcus or pneumococcus forms were always preponderant and present in great numbers. The presence of the tubercle bacillus was established in a considerable proportion of the cases. Ortnier concludes that in lungs affected with tuberculosis, one must recognize two pathological processes—that which leads to the formation of tubercle, and that which induces the pneumonic processes. These differ both histologically and ætiologically. The tubercles are caused by the tubercle bacillus; the more diffuse pneumonic processes are due to the activity of the pathogenic cocci.

Klein* examined bacteriologically inflamed portions of the body of tuberculous persons who had shown a reaction when treated with tuberculin shortly before death. He examined pneumonic areas in the lungs near tubercular foci (ten cases); contents of cavities (four cases); pus from various sources (three cases); fibrinous exudate in pleura (two cases); tissue of spleen and kidney (each one case). In all these tissues and exudates he found pathogenic cocci, which he does not clearly differentiate from *Streptococcus pyogenes* and *Micrococcus lanceolatus*, but to which at least they are closely related. The constant association in his cases of these pathogenic cocci with those inflammatory processes which under the name of "reaction" the administration of tuberculin seemed to accentuate, led Klein to investigate experimentally the effects of tuberculin on inflammatory lesions produced in non-tubercular animals by inoculation with streptococci from various sources. He finds as the result of thirteen experiments on rabbits that tuberculin in small doses has the effect of intensifying in marked degree the inflammatory processes lighted up by streptococci. He gives the story of two cases of erysipelas in man in which the inflammatory process was greatly intensified by the administration of tuberculin. The inference which these observations suggested—namely, that metabolic products of the growth of the tubercle bacillus may have some pronounced effect upon the life processes of certain pathogenic cocci—led to some further experiments. He could find no difference, however, in the growth of streptococci in beef tea or gelatin, and in beef tea or gelatin to which small quantities of tuberculin had been added. This result is in line with that of Babes, who found that *Streptococcus pyogenes* and *Diplococcus pneumoniae* did not grow with special vigor on media on which the tubercle bacillus had grown. In two experiments Klein thought that he had found the virulence of the

streptococcus to be markedly increased by its growth on tuberculinized culture media. But his cultures and animal experiments were far too meager to permit of definite conclusions.

Petruschky* has examined at the Institute for Infectious Diseases at Berlin, the sputum of persons with pulmonary tuberculosis—both those with and those without fever—with reference to its bacterial contents, and also the viscera of those dead of pulmonary tuberculosis. Streptococci were of most frequent occurrence, not only in the sputum, but in eight out of fourteen cases were found in the blood and all the viscera. The details of his studies are not yet published, but he is led to regard the streptococcus invasion as a serious complicating factor in phthisis, probably bearing an intimate relationship to the "hectic fever." Petruschky recognizes the difficulty of distinguishing between species or varieties in the streptococci which are so often found in acute inflammatory conditions. But he finds the streptococci cultivated from the sputum and organs of phthisis cases, on the whole, less virulent than those from erysipelas and the ordinary septic cases.

The studies of Nannotti,† though not directly concerning the lungs, have an important bearing on our theme. He observed a favorable change in a tubercular inflammation of the knee joint after the spontaneous occurrence of erysipelas, and was led to undertake a series of experiments on the assumed antagonism between tuberculosis and erysipelas. Rabbits and guinea-pigs with artificially induced tuberculosis were treated by inoculation of pure cultures of the streptococcus, or by injection of its filtered and sterile metabolic products. Experiments in the way of preventive inoculations, before tubercularization, with living streptococcus or injections of its sterile filtered products were made. Finally, the effect upon the tubercular process of the induction of a simultaneous chemical inflammation with croton oil was studied. Under the influence of the artificially induced streptococcus inflammation, the tubercular process was markedly modified. Tubercular abscesses grew smaller and the tubercular fistulæ might heal. But the tubercular process was not hindered from generalization in the common way by these local interferences, nor was the virulence of the tubercle bacilli which remained in the walls of the abscess diminished. Moreover, the inflammatory process induced with croton oil manifested a favorable local influence on the tubercular process not less marked than that caused by the streptococcus.

The experimenter thinks that the favorable effect of the erysipelas on the tubercular inflammation may be due to the leucocytosis induced by the former, which contributes to the destruction of the fungous granulations by suppuration, and that the supervening cicatricial tissue forms a temporary isolating resting place for the tubercle bacilli, which are thus for a time kept under conditions unfavorable to their proliferation and dissemination. No evidence

* Klein. *Ursachen der Tuberculinwirkung*. Wien, 1893.

* Petruschky. *Tuberculose und Septicaemie*. *Deutsche med. Wochenschr.*, No. 14, April 6, 1893.

† Nannotti. *La Rif. med.*, 1893, pp. 128-130; *Rev.*, *Cbl. f. Bakt.*, etc., Nov. 3, 1893, p. 601.

of a specific antagonism between the streptococcus and the tubercle bacillus appears from these studies.

Jakowski examined* by culture the blood in nine cases of pulmonary tuberculosis in the hectic period, and in seven of the cases found the pyogenic bacteria. The *Staphylococcus pyogenes aureus* was present in five of the cases—twice alone, twice with albus, and once with streptococcus. *Streptococcus pyogenes* was present in three cases—twice alone and once with *Staphylococcus pyogenes aureus*.

Fraenkel and Troje,† on the other hand, have shown in their most careful and interesting work on the *Pneumonic Form of Acute Pulmonary Tuberculosis* that in this form of disease in which the exudative is apt to so largely predominate over the productive lesion, the tubercle bacillus alone was present in the lungs in eleven out of twelve cases; in the remaining case streptococci were present in large numbers. The earlier experiments of Baumgarten on the production of varying phases of tubercular broncho-pneumonia in the rabbit by the tracheal injection of tubercle bacilli were repeated with confirmatory results.

These observers call especial attention to the fact that while both in man and the rabbit cheesy degeneration is associated with the local growth and development of the tubercle bacilli, large areas of epithelial cell proliferations and exudative inflammation may develop at some distance from the seat of lodgment or growth of the tubercle bacilli, and are apparently due to the action of a soluble diffusible poison developed by the germ.

According to Fraenkel and Troje the morphological differences between the so-called cheesy pneumonia, which is a tubercular broncho-pneumonia, and the organized tissue structures known as tubercles is primarily due to the fact that while the tubercles are developed in the interalveolar structures of the lungs to which the bacilli are brought by the blood or lymph vessels, largely free from intermingled poisonous substances, the infection by aspiration is intra-alveolar and the bacilli are accompanied by greater or less quantities of diffusible poisonous material developed at their original seat. Thus, while in the vicinity of metastatic tubercles, miliary or otherwise, the metabolic products of the growth of the tubercle bacillus gradually produced may incite exudation and cell proliferation beyond the limits of the focus of productive inflammation, this is not and can not be so extensive and quickly developed as under conditions which involve the sudden accession to the air spaces of the lungs, not only of tubercle bacilli, but of greater or less quantities of already elaborated poison, as is the case in the tubercular broncho-pneumonia of acute phthisis incited by aspiration.

This interesting hypothesis finds additional support in the experimental results of the writer's studies presently to be recorded.

It would appear, then, that the evidence thus far gathered indicates the frequency and importance of a concurrent infection in tuberculosis of the lungs as a compli-

ating factor in pulmonary tuberculosis, and that *Streptococcus pyogenes*, *Micrococcus lanceolatus*, and *Staphylococcus pyogenes* are the secondary germs frequently present. But however frequently pyogenic or other bacteria may prove to be associated with the tubercle bacillus in the lesions of pulmonary tuberculosis, it is not just to assume that all or even a large part of the exudative inflammation and cell proliferation which we find in tubercular lungs is necessarily due to the action of secondary or complicating bacterial invaders; because the experimental studies of Baumgarten,* Fraenkel and Troje,† the writer, and others have shown that it is possible to cause in rabbits a typical tubercular broncho-pneumonia with large consolidation and cheesy degeneration and with much fibrinous and cellular exudate by the injection into the lungs through the trachea of a pure culture of the tubercle bacillus. Furthermore, in many cases of tubercular broncho-pneumonia in the human subject the tubercle bacillus is alone demonstrable in the consolidated areas, as is shown especially by the examinations of Fraenkel and Troje.‡

It is most important, not only for a proper conception of the complex nature of pulmonary tuberculosis as a pathological process, but also from the standpoint of prophylaxis and treatment, that more light should be thrown upon the question of secondary infection in this disease. Evidently far more extended bacterial studies will have to be made of blood, sputum, and the lungs themselves in cases of pulmonary tuberculosis before the whole significance and bearing of the subject will be plain. In the meantime it has seemed to the writer that a series of experimental studies on the effect of association of the tubercle bacillus and its products with other germs frequently found with it in the lungs in phthisis, as shown both in cultures and in animals, would be useful in controlling the studies of the bedside and the autopsy room. The studies recorded in this paper concern the relationships, as above indicated, of the tubercle bacillus and the *Streptococcus pyogenes*.

EXPERIMENTAL STUDIES OF THE WRITER.—A set of preliminary experiments was made with the purpose of determining the effect on each other, in cultures under varying conditions, of the tubercle bacillus and the *Streptococcus pyogenes*, and of their metabolic products.

It does not seem necessary to give the details of these culture experiments, but only their general results, which may be summarized as follows: When the tubercle bacillus and the *Streptococcus pyogenes* are planted together on glycerinated (five per cent.) beef broth, the streptococcus grows as abundantly as in separate control cultures, while the tubercle bacillus does not grow at all. On the glycerinated broth, in which the streptococci had grown for five days, and which was rendered sterile by filtration through porcelain, the tubercle bacillus failed altogether to grow, either when the sterilized broth was used in its full strength, or when diluted in various degrees down to four times its volume with fresh glycerinated broth. The streptococcus,

* Jakowski. *Centralbl. f. Bakteriöl.*, etc., Dec. 9, 1893, p. 762.

† Fraenkel and Troje. *Zeits. f. klin. Med.*, Bd. xxiv, Heft. 1, 2, 3, 4, 1893.

* Baumgarten. *Loc. cit.*, Bd. x, p. 24.

† Fraenkel and Troje. *Loc. cit.*, Bd. xxiv. Reprint, p. 116.

‡ Fraenkel and Troje. *Loc. cit.*, p. 122.

planted in sterile broth filtered from tubercle bacillus cultures which had attained their full growth, did not grow when the broth was of full strength, but grew as abundantly as in control tubes when the tubercle broth was diluted with an equal volume or with greater amounts of fresh broth. On the whole, then, this set of culture studies indicates that, while the metabolic products of each of these germs in considerable strength in the culture medium is inhibitive to the other, the tubercle bacillus, under the conditions named, is much the more sensitive.

The main series of experiments was made with a view of determining *what modifications, if any, are produced in the lungs of rabbits, already the seat of tubercular inflammation, by the introduction directly into the lungs through the trachea of the Streptococcus pyogenes.* It is evident that, in order to understand the combined action of two distinct pathogenic germs on the lungs, we must know their effects upon the same organ when acting alone.

This study, then, has three distinct phases: 1. The effect upon the lungs of the rabbit of the injection through the trachea of pure living cultures of the *Streptococcus pyogenes.* 2. The effect upon the lungs of the rabbit of the injection through the trachea of pure living cultures of the tubercle bacillus. 3. The effect upon the lungs of the rabbit of the injection through the trachea, first, of the tubercle bacillus, and then, after the development of the tubercular lesion, of the *Streptococcus pyogenes.*

The procedure in these tracheal injections is simple. The hair is removed from the front of the neck and the skin sterilized. The trachea is exposed at its most superficial point by a small incision, and drawn gently forward by a hook, when the needle of the syringe is thrust between the rings and the injection made. The head and shoulders of the animal are held high, so as to facilitate the passage of the injected fluid into the deeper recesses of the lungs. The little wound is washed with sublimate solution and bound up. Healing, as a rule, occurs promptly and without complication.

1. *The Effect of Streptococcus Injections into the Lungs of the Rabbit through the Trachea.*—The culture used in all these experiments was derived from an abscess in the leg of a child, and was of the long chain variety, forming abundant flocculi in the clear broth. Cultures were always used four days old, and in amounts varying from two to four cubic centimetres. It is not necessary to give details of these experiments, which were in the nature of controls, because they have been made by many observers in studies on the aetiology of pneumonia. It may be said, in brief, that the most common effect of the injection of a moderate amount of the *Streptococcus pyogenes* into the lungs of rabbits through the trachea is to cause a broncho-pneumonia, with hyperplasia of the lymph nodules; and that the bacteria disappear early from the lungs, and the pneumonia in most cases is slight in extent and evanescent; but that, in a few cases, the inflammation is prolonged by a moderate involvement of the walls of the air-spaces.

The healthy rabbit is, in general, not very susceptible to the action of *Streptococcus pyogenes*; but it has been

shown by the writer* and others that the broncho-pneumonia induced by the streptococcus may be intensified if its injection is preceded by the induction of an abnormal condition, as through the introduction of irritating vapors or fluids, or of various solid materials. Under the most favorable conditions, however, the broncho-pneumonia induced in the lung of the rabbit in this way is of moderate extent, forming areas of consolidation, usually invisible or inconspicuous to the naked eye, which usually soon disappear. The streptococci themselves soon disappear from the lungs—in the writer's experiments, within two days.

2. *The Effect of Tubercle Bacillus Injections into the Lungs of Rabbits through the Trachea.*—Before the discovery of the tubercle bacillus, many interesting and important experiments were made by the inhalation of sprayed tubercular sputum or its direct introduction into the lungs of dogs, rabbits, etc. But experimentation became far more precise after the discovery of the bacillus and its use for lung injection in pure cultures. It has been possible by the introduction of pure cultures of the tubercle bacillus into the lungs of rabbits through the trachea to cause the varying phases of tubercular broncho-pneumonia with cheesy degeneration. The details of these lesions have been described by Baumgarten, by Fraenkel and Troje, and by others, and will be repeated here only in such a general way as is necessary for our present purposes.

The studies of the writer show, in the first place, that the experimenter has it within his power to vary at will, within wide limits, the distribution, extent, and in considerable measure the character of the lesions which may follow the introduction into the lungs of the rabbits of pure cultures of the tubercle bacillus. If a small quantity of the culture be used and be distributed in very minute flocculi through a considerable quantity of salt solution, so that the emulsion has a faint milky appearance, and a large amount, say from two to three cubic centimetres of the material, be introduced into the lungs through the trachea, the animal being held on its back with the head and shoulders high and turned from side to side, one can usually so distribute the germs in the lungs that small discrete areas of consolidation result, having the gross appearance of miliary tubercles. If, on the other hand, larger quantities of the tubercle bacillus are used, so that from three to five cubic centimetres of a deep milky emulsion are introduced, no especial pains being taken to distribute it in the lungs, large areas of consolidation may be induced involving whole lobes or whole lungs. Under these circumstances the right upper lobe and the posterior parts of both lower lobes of the lungs are most apt to be consolidated and to present a gross appearance similar to that of many phases of solid lungs in acute phthisis or cheesy pneumonia.† In regard to the experi-

* Prudden and Northrup. *Am. Jour. of the Med. Sciences*, June, 1889.

† This variation of the lesions dependent upon the amount of the tubercle bacilli introduced into rabbits' lungs, hitherto for the most part unrecognized, would seem in a measure to account for the discrepancies in the description of these experimental lesions observed in different writers. Its recognition would go far toward making untenable the position of those who claim a peculiar and exceptional nature for cheesy pneumonia on account of the fibrinous exudate so frequently associated with it.

mental control of the quality of the lesion, it may be said, in general, that when very large amounts of the tubercle bacillus are introduced, the early phases of the resulting lesion are apt to be dominated by the occurrence, in addition to the local cell proliferation and productive inflammation and cheesy degeneration, of an exudative inflammation especially characterized by the accumulation in the air spaces of fibrin and leucocytes or lymphocytes.

The experiments of this set, whose results are now to be summarized, were done on sixteen rabbits, varying quantities of the culture of the tubercle bacillus being introduced. In eleven out of these sixteen animals the amount and distribution of the tubercle bacillus were such that considerable masses of consolidation in the lungs occurred—masses ranging from a cubic centimetre up to those involving whole lobes (Figs. 1, 2, and 3). Of the whole number of animals, two died on the third day, one on the fourth, two on the sixth, one each on the seventh, eighth, and twenty-fourth days. The remaining animals were killed as follows: One each on the twelfth and twenty-ninth day; three on the thirty-sixth day; two on the forty-first day. The five animals presenting only small foci of solidification were those which died or were killed on the sixth, seventh, and thirty-sixth (two) days after the injection. In order to diminish the chance of experimental and inferential errors, these animal experiments were done in three separate groups at different times, the rabbits being secured from different sources. The cultures of the tubercle bacillus were different in each of the three groups.

The result of the lodgment in the air spaces of the lungs of *small* scattered masses or cultures of tubercle bacilli is the intra-alveolar proliferation of epithelial cells, among which are intermingled varying numbers of leucocytes. After the development of these cell masses, which may occur within a few hours, they may remain with little apparent change, or become more or less infiltrated with leucocytes, or may become cheesy, or may be surrounded by a dense zone of small spheroidal cells. They show, as a rule, no tendency to the disintegration of the cheesy centers up to the forty-first day, beyond which time I have not studied them.

When *large* flocculi or masses of the tubercle bacilli are introduced into the lungs, the first effect upon the organ is the collection about the germs in the air spaces where they have lodged of dense masses of leucocytes and lymphocytes. These cell collections immediately about the germs form the centers of the inflammatory foci which develop later. These larger or smaller masses of small spheroidal cells usually form ramifying areas of consolidation corresponding to the smaller bronchi and series of connecting air spaces in which the bacilli have lodged. They may be scattered sparsely through the lung or may be abundant and more or less closely grouped in the affected regions, so that to the naked eye parts of lobes or whole lobes may, on cut sections, appear thickly beset with larger and smaller irregular-shaped white solid patches. The walls of these cell-filled air spaces may be squeezed by the exudate and soon become necrotic. This condition may develop within twenty-four hours. The blood-vessels about these intra-alveolar

masses of small cells and tubercle bacilli are intensely congested, and within forty-eight hours a varying considerable proliferation of alveolar epithelium has occurred in the zone of air spaces surrounding the primary foci. Giant cells may form in the air spaces, apparently by the fusion of the new-formed epithelial cells. The changes of a productive inflammation may begin in the walls of the air spaces about the primary small-celled foci as early as the third day. The smaller bronchi belonging to the involved air spaces may be also densely packed with small spheroidal cells. Within the first three days, if the amount of injected tubercle bacilli be large, the air spaces about the involved areas may be the seat of an exudative inflammation, so that they are closely filled with fibrin and leucocytes as well as exfoliated and proliferated epithelium.

Almost as soon as they have collected, a large portion of the leucocytes and lymphocytes in the immediate vicinity of the clusters of tubercle bacilli may die. Their bodies become granular and disintegrate, while their nuclei maintain their forms and power to take the hematoxylin stain. Thus it comes about that usually within three days of the introduction of the tubercle bacilli the small spheroidal cell masses which first gather about them are converted into densely packed masses of cell detritus in which lie the still perfectly shaped and readily stained nuclei. This change is not in my opinion properly to be called coagulation necrosis, or cheesy degeneration, but is rather a simple necrosis and disintegration of the cell bodies. Cheesy degeneration may follow later with the disappearance of the nuclei and the conversion of the cell structures into a homogeneous or finely granular material in which cell outlines and structures of all kinds are lost.* The tubercle bacilli are largely, if not entirely, confined to the dense central cell masses, so that both the epithelial cell proliferation and the exudative inflammation appear to result from some soluble product of the tubercle bacillus which may diffuse widely from the point of lodgment of the germs, as has been suggested by Fraenkel and Troje. The endothelium of both large and small blood-vessels may be at this time swollen and proliferated.

As time passes the naked-eye distinction is maintained between a larger or smaller irregular-shaped central white area of consolidation and the seat of lodgment of the injected bacilli and a surrounding more translucent zone of solid lung, which contains, as a rule, very few tubercle bacilli. The central mass of necrotic cells and lung tissue may gradually undergo coagulation necrosis, and may increase in size by encroachment on the surrounding zone of consolidation. For many days, however, the cellular characters of the central mass may be maintained, and leucocytes, often in large numbers, may wander in from the borders. At the same time the translucent border zone of

* A similar accumulation of small spheroidal cells and simple necrotic changes in them occurs after the introduction of *dead* tubercle bacilli into the lungs under similar conditions (Prudden and Hodenpyl, *New York Med. Jour.*, June 6 and 20, 1891). But in this case neither the cells themselves nor the new-formed cell structures which form about them become cheesy; they are absorbed and ultimately with the tissues about them are converted into fibrous nodules.

consolidation grows wider and is characterized especially by air spaces filled with the new-formed epithelium, or by fibrin and leucocytes, or both, with congestion of the blood-vessels in the walls of the air spaces, or by the obliteration of the blood-vessels from an interstitial growth of new tissue. Giant cells are often abundant in this zone. In air spaces cut off from their neighbors by the new-formed interstitial tissue, the epithelium reverts to the embryonal type and lines the isolated spaces with cuboidal cells. Tubercle bacilli can in my experience rarely be found in these translucent zones of productive inflammation.

The changes thus far indicated are such as may occur within the first two weeks after the injection of the bacilli. From this time on up to the seventh week the changes are quantitative rather than qualitative. The central necrotic mass may become fully and characteristically cheesy, and may grow slowly larger by encroachment upon the surrounding zone of epithelial cell proliferation and productive and exudative inflammation. The areas of consolidation may coalesce so as to render whole lobes or lungs solid, so that to the naked eye the cut surface presents an irregular mottling of large or small white opacities and more translucent intervening areas. The intima of larger blood-vessels near the involved areas may be thickened and smaller trunks may be obliterated.

Out of eleven rabbits in which virulent tubercle bacilli injected through the trachea led to a considerable consolidation of the lungs, in only one were cavities found. This animal was killed on the thirty-sixth day after the injection. No bacteria other than the tubercle bacilli were demonstrable in or about these small cavities. This lung is shown in Fig. 4. It would thus appear from these experiments that while they may exceptionally occur, there is little tendency to the formation of cavities in rabbits' lungs thus experimentally the seat of an acute tubercular broncho-pneumonia caused by the injection of pure cultures of the tubercle bacillus.

Several of the older experimenters,* working before the discovery of the tubercle bacillus, have mentioned the occasional formation of small cavities in the lungs of rabbits in which experimental pulmonary tuberculosis was induced. Schaeffer† reports the development of small cavities in the lungs of rabbits after the intra-tracheal injection of the tubercular sputum.‡ On the whole, however, the formation of cavities in the lungs of rabbits subject to pulmonary tuberculosis is of rare occurrence. So infrequent is their development in these lungs even when the lesion is extreme, and whole lungs or parts of lungs are solid and cheesy, that it has been said in reproach that while various phases of pulmonary tuberculosis can be and have been experi-

mentally induced in the rabbit, the secret of this primary character of pulmonary phthisis—the formation of cavities—is still concealed. Baumgarten,* while admitting the occasional formation of small cavities in the lungs of rabbits affected with pulmonary tuberculosis as the result of a softening of cheesy material, considers them as very exceptional, and declares their occurrence as possible only after the tubercular lesion has existed for several months.

This set of experiments then shows that by the introduction of living tubercle bacilli into the lungs of rabbits through the trachea, tubercular lesions can be induced which vary in their appearance and characters from small foci of tubercular broncho-pneumonia resembling certain forms of miliary tubercles on the one hand, to large consolidated tracts on the other, which closely accord in appearance and structure with certain phases of extensive tubercular broncho-pneumonia or acute phthisis in the human subject, save that the formation of cavities in the animal is of exceptional occurrence.

These experiments also show that the tubercle bacillus alone is capable of inducing in the lungs of the rabbit not only the more characteristic phases of tubercular lesions—cell proliferation, tissue formation, and cheesy degeneration—but also an exudative inflammation of varying intensity closely dependent upon the number of bacilli introduced into the lungs.

Furthermore, these experiments indicate in accordance with those of Fraenkel and Troje† that the effect of the tubercle bacillus in inducing cell proliferation and exudative pneumonia may be exerted at considerable distances in the lungs from the seat of the tubercle bacillus itself, apparently by the diffusion of some soluble material elaborated or set free by the germ.

Finally, this set of experiments indicates that while in the presence of the tubercle bacillus alone in the lungs of rabbits cavities may form, this is unusual, and the cavities are not extensive.

Having thus established experimentally, in so far as it was necessary to do this by the new series of observations just described, the effects upon the lungs of rabbits of the separate introduction through the trachea of *Streptococcus pyogenes* and the tubercle bacillus, we are now ready to turn to the third set of experiments, which have for their object the study of

3. *The Effects of the Introduction of Streptococcus pyogenes into the Lungs of Rabbits already the Seat of Experimental Tubercular Broncho-pneumonia.*—In this set of experiments thirteen rabbits were used. These animals were operated in two groups at different times. The cultures of the tubercle bacillus were the same as those used in the set of control experiments last described, and the operation was in fact done at the same time, these animals being reserved for this set of subsequent injections. The streptococcus culture was the same as that used in the first set of controls. The amount of streptococcus introduced varied somewhat. The clear supernatant beef tea was poured off

* Waldenberg, Hering. See Baumgarten, *Arch. f. kl. Med.*, Bd. ix, p. 267.

† Schaeffer. *Die Verbreitung der Tuberculose in den Lungen*, im Diss., Berlin, 1884.

‡ It is worthy of note that in most, if not all, of the cases in which small cavities are described as found in rabbits' lungs as the result of the introduction of tubercular material, such material has been as might harbor other germs and not pure cultures of the tubercle bacillus.

* Baumgarten. *Loc. cit.*

† Fraenkel and Troje. *Loc. cit.*

from the flocculent sediment of several beef-tea cultures in tubes four days old. The sediment of these tubes was mixed, and from two to three cubic centimetres of this opalescent or slightly milky fluid was introduced into the lungs through the trachea of rabbits which had been at varying periods before similarly injected with virulent tubercle bacilli. The mode of injection of the tubercle bacillus was identical with that of the series of experiments last described, and was made with the intention of inducing as nearly as possible identical lesions.

The outline of these experiments on thirteen rabbits is as follows:

In two animals, thirteen days after the injection of the tubercle bacillus, the streptococcus was introduced and the animals were killed after ten days.

In one, twenty-two days after the tubercle bacillus, the streptococcus was introduced and the animal died after twenty-four hours.

In three, twenty-three days after the tubercle bacillus, the streptococcus was introduced. One animal was killed after seven days, and two after thirteen days.

In seven, twenty-eight days after the tubercle bacillus, the streptococcus was introduced. Two of the animals died, one on the fourth and one on the fifth day; five were killed, one on the seventh and four on the thirteenth day.

Of these thirteen animals, four only showed lung lesions so slight as to involve small areas of the lungs. The remaining nine showed areas of involvement of the lung from the size of a cubic centimetre up to a whole lobe or several lobes. It will be seen that the mortality was not increased by the later injection of the streptococcus, nine animals out of sixteen having died after the tubercle bacillus alone, while three out of thirteen died after the concurrent infection.

The point of view from which these experiments were undertaken favored the conjecture that while the streptococcus when introduced into the lungs of a healthy rabbit—an animal not very susceptible to the presence of this germ—produces, as a rule, but little local effect, still, when injected into a lung already in an abnormal condition from the presence of a tubercular lesion, it might be capable of producing more marked changes. The particular form of lesion which was anticipated as most likely to result from this concurrent infection was a consolidation from exudative pneumonia. The observations on man already noticed in this paper served to strengthen this anticipation. In fact, however, neither the gross nor the microscopical examination of any of the lungs of the thirteen animals in this set showed more involvement of these organs by pneumonic consolidation than did the animals in which the tubercle bacillus alone was introduced.

On the other hand, a large proportion of these lungs which had been the seat of concurrent infection with the tubercle bacillus and the streptococcus showed, in addition to the lesions of a tubercular broncho-pneumonia, a most remarkable formation of cavities. Nine lungs out of the thirteen were, as has been stated above, considerably consolidated, and eight out of these consolidated lungs showed cavities in various phases of development. The photo-

graphs of the cut surfaces of these eight lungs are reproduced in Figs. 5-12. These pictures show better than a verbal description can, the general character of the effect of a secondary infection of tubercular rabbits' lungs with *Streptococcus pyogenes*.

These cavities are due to the softening and absorption of the necrotic small cell masses or the cheesy centers of the areas of tubercular consolidation artificially induced. They ran in size from that of a pin's head (Fig. 5) to those involving nearly a whole lobe. In some cases there is one cavity, in others a series of communicating chambers, crossed by cords and bands of old lung structures. They all communicate with the bronchi, and can be filled with fluids through the trachea. A few are lined in places with remnants of bronchial epithelium. They may be surrounded with little or much consolidated lung tissue, or, in fact, closely resemble the cavities which are prone to form in human beings in acute phthisis. The softening of the consolidated lung may begin as early as twenty-four hours after the introduction of the streptococcus. It may involve tubercular foci as small as two millimetres in diameter, or those which occupy a whole lobe. The cords and bands stretching across these cavities (Figs. 9 and 12) usually contain a bronchus and its surrounding connective tissue.

The microscopical examination of the series of lungs which have been the seat of a concurrent infection with the tubercle bacillus and streptococcus shows very clearly the successive steps in the formation of the cavities.

The necrotic centers of the consolidated areas may within twenty-four hours begin to become friable and loose in texture, or the central portion of the necrotic mass, retaining its coherency, may become sequestered and loosened from the surrounding solid lung tissue. Then disintegration of the necrotic mass proceeds rapidly with disappearance of the detritus, apparently by absorption, leaving a cavity bounded by whatever form of tissue composed the outer zone of the consolidated area involved. If the tubercular lesion were advanced so that the outer zones were fibrous, as in the rabbit may happen within two or three weeks, then the walls of the cavities may be fibrous and lined with an irregular layer of cell detritus. If, on the other hand, the particular tuberculous mass were composed in its outer zones of densely packed epithelial cells, or of these with more or less new-formed stroma, or of a zone of dense living tissue infiltrated with small spheroidal cells, then the wall of the new-formed cavity has one or other of these structural characters. Cavities forming close beneath the pleura may have dense fibrous walls containing many old and new formed, often dilated, blood-vessels.

The lung tissue about the cavities may be compressed or contain various forms of exudate, or may show, as the result of reversion, a series of irregular spaces lined with cuboidal cells. Calcification of small areas in the walls of these cavities is of frequent occurrence. The size and form of the cavities appear to be determined in these cases largely by the size and form of the necrotic areas to whose softening and disintegration they are due.

Since, as has been already indicated, the tubercle bacilli are largely confined in these experimental lesions of the

rabbits' lungs to the central portions of the consolidated areas, it is not surprising that very few bacilli are to be found in the walls of these cavities. I have been able to find streptococci in the detritus inside the cavities and in the inner portions of their walls as late as the fifth day after its injection, but beyond this time the morphological examination fails to reveal them. Cultures were not made of the lungs presenting the later phases of cavity formation, as the lungs were, for demonstrative purposes, filled with alcohol through the trachea at once on the death of the animals. I found no evidence of increase in the streptococci after their introduction, nor could they be detected after twenty-four hours beyond the limits of the necrotic foci, where they soon disappeared. In one case only was there evidence of suppurative inflammation in the lung about the cavities, and in this case the morphological examination (cultures were not made) showed the presence of enormous numbers of cocci in pairs and short chains widely distributed through the lungs.

The effect, then, of introducing cultures of the *Streptococcus pyogenes* in the manner described into the lungs of rabbits which are the seat of experimental tubercular broncho-pneumonia with areas of local necrosis is to induce rapid disintegration and absorption of the necrotic tissues with the formation of cavities.

To what particular substance in the beef-tea cultures of the streptococcus this effect may be due my studies thus far have not made clear. Whether it is due to the presence of the germs themselves, or to metabolic products elaborated by them in the lungs, or to products of metabolism manufactured while the germs were under artificial cultivation and introduced with them in the beef-tea culture—these are matters for future investigation.

I am disposed at present to think that this rapid formation of cavities in the tubercular lungs of rabbits may be due to a simple chemical action of the fluids introduced into the lungs on the ill-nourished and necrotic foci. Whether the same material introduced into the bodies of rabbits in smaller quantities and in repeated doses, or introduced into their bodies at some point removed from the lungs, would have similar or analogous effects, may be shown by later studies. The whole matter of the curious disturbances of equilibrium, of local and general nutrition, and the subtle effects on the nervous system which may be induced in the body by the injection of the most varying organic compounds, of animal as well as of bacterial origin, is so obscure that at present we are in far more urgent need of more facts than of guesses.

SUMMARY.—The action of the tubercle bacillus in the body is complex. It can induce cell proliferation, exudative and productive inflammation, local obliteration of blood-vessels, simple and coagulation necrosis, and systemic poisoning or septic intoxication. These effects vary with the seat of the lesion, the virulence of the germs, and the susceptibility of the affected individual.

The lesions of pulmonary tuberculosis are subject to variation, first, on account of the complexity in the direct action of the tubercle bacillus in the ways above indicated; second, as the result of different modes of distribution of

the tubercle bacilli, such as through blood or lymph vessels, or through the air passages by aspiration; third, as the result of a concurrent infection of the lungs with other germs.

A considerable amount of exudative pneumonia in lungs which are the seat of tubercular inflammation may be caused by the tubercle bacillus alone.

An exudative pneumonia of varying extent and of extreme significance may occur in lungs which are the seat of a tubercular inflammation as the result of a secondary infection with other germs. The germs most frequently concerned in this secondary infection are *Streptococcus pyogenes*, *Micrococcus lanceolatus* (the "pneumococcus"), *Staphylococcus pyogenes*. The exact frequency of this secondary infection and the relative significance of the different germs involved are to be determined by further studies.

Experimental studies on the rabbit show that it is possible, by the introduction of the tubercle bacillus into the lungs through the trachea, to induce varying phases of pulmonary tuberculosis, some of which are practically identical with certain forms of acute phthisis in man, save that the formation of cavities is of exceptional occurrence. These studies further show that the introduction of cultures of *Streptococcus pyogenes* into rabbits' lungs which are already the seat of extensive tubercular consolidation and necrosis is followed, not by an increased amount of exudative pneumonia, but, in many cases, by the extensive development of cavities.

CONCLUSIONS.—In judging of the inferences applicable to man which may be drawn from these experimental studies on the rabbit, one must remember that this animal is, on the whole, much more susceptible than man to the action of the tubercle bacillus, and much less susceptible to the action of the *Streptococcus pyogenes*. Furthermore, the conditions of these experiments on concurrent infection, particularly the sudden deluging of the tubercular lungs with both living streptococci and their accumulated metabolic products, would suggest reserve in inference.

It certainly does not follow, because the secondary injection of streptococci into the tubercular lungs of rabbits does not incite an exudative pneumonia, that the accession of these germs, under the usual conditions, to human tubercular lungs does not frequently produce that result.

Nor does it certainly follow from these animal experiments that the *Streptococcus pyogenes* is a necessary factor in the development of cavities in acute phthisis in man. The inference seems justifiable, however, that, though not so rapid in their action, the presence of the streptococci, so often found, or of small quantities of their metabolic products gradually formed, may contribute to the necrosis and disintegration through which cavities in man are formed or increase in size.

The final significance of these animal experiments and their direct bearing on our conceptions of the nature and complications of acute pulmonary tuberculosis will be clear only after a more extended study of the frequency and varying conditions of such concurrent infections in man.

But they do show, with a clearness and positiveness which no assumption, however probable, could give, that

the concurrent action of two distinct pathogenic germs may result in a considerable modification of the lesions which either could produce alone.

It may be said, in conclusion, that, apart from the details which are still to be studied, and the general conceptions which time, research, and thought can alone perfect, the practical importance of the establishment of the view that tuberculosis of the lungs is liable to assume the character of a mixed infection by the entrance into the lungs and action on the already vulnerable pulmonary tissues of other germs can hardly be overestimated.

This conception of pulmonary tuberculosis serves to explain in the clearest way the varying vicissitudes of this disease, and the unfavorable course which it is liable to pursue when its victims are exposed to the widespread chances of infection with pyogenic germs in cities and especially in crowded and improperly cleaned hospital wards. On the other hand, some at least of the beneficial effects of life in the open air of salubrious regions are explained, and the *rationale* of some of the favorable effects of so-called anti-septic treatment becomes clearer from this new point of view. But, beyond all, this conception of phthisis emphasizes the importance of definite and intelligent measures for warding off the complicating lesions by scrupulous attention to hygiene and sanitation, and especially the avoidance, in ways suggested by our modern notions of cleanliness, of common sources of aerial infection.

THE TREATMENT OF EPILEPSY BY TENOTOMY OF THE EYE MUSCLES AND BY OTHER SURGICAL MEANS.*

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"If I wished to show a student the difficulties of getting at truth from medical experience, I would give him the history of epilepsy to read." (1)

So, wisely and truthfully, preaches the Autocrat, and yet we seem impelled to plod along, trying, as best we may, to discern, however dimly, the rays of the lamp of truth shining fitfully through the darkness of our ignorance.

The more one studies the therapeutics of epilepsy, the more one is inclined to believe, with Dr. Holmes, that "there is hardly anything which has not been supposed to cure it." My purpose in this paper is to confine myself to discussing the eye treatment of this curious disease, and to an examination of such other procedures as are likely to explain the *modus curandi* of ocular muscle-cutting in a certain class of epileptics.

Probably the most exhaustive and most interesting monograph upon the eye treatment of epileptics since Stevens, in 1881, presented his memoir to the *Académie royale de médecine* of Belgium is Dr. A. L. Ranney's article, published in four successive numbers of the *New York Medical*

Journal, beginning with January 15, 1894. He there recites his experience of the treatment of twenty-five epileptics.

Whether one agrees or disagrees with the writer, one can not help wishing that a cure of epilepsy might follow the production in the patient's eyes of the ideal emmetropic and orthophoric state that Ranney appears to seek in treating his patients. As I take it, he would not be satisfied that his method had been a failure in any given case as long as there remained the slightest amount of even latent heterophoria present. I have for years believed that insufficiency of the eye muscles acted as an irritant in the production of certain symptoms—ocular and reflex—and I presume I have done my share of muscular advancements and tenotomies for their relief, and with the average amount of success; but there are some reasons, it appears to me, why I can not accept the position of Dr. Ranney that heterophoria is, in the majority of instances, the principal factor in the production of so-called idiopathic epilepsy. I propose to examine the whole subject as briefly as possible.

Practically everybody has heterophoria—that is to say, almost every one of us has insufficient oblique muscles, insufficient or excessive abduction, adduction, sursumduction, latent or manifest esophoria, exophoria, hyperphoria, or some of these either singly or combined. Orthophoria in this sense, the sense of Dr. Ranney, is a good deal rarer than that rare condition (once supposed to be so common) called emmetropia. For a year past I have been in the habit of making a cursory examination of those of my patients whom they and I considered cured, or at least for the present free of all their ocular troubles, and I find that the eyes of about five per cent. could be set down as orthophoric. I believe that, with the use of prisms, I could reduce that percentage to two or three. Whenever, for example, the abductors can not easily and shortly overcome the diplopia caused by a 9° or 10° (O. S.) prism, base in, it is probable that some esophoria may be demonstrated in a few days by having the patient wear a 1° or 2° prism, base out, for a week. Indeed, whenever there is seeming orthophoria, weak points in some part of the muscular balance can be developed by the judicious prescription of prisms to be worn for a number of days. The latent heterophoria becomes manifest.

In the same way exophoria for near work is almost universally present, and when it is not present there is almost always, in such cases, sure to be some form of heterophoria at six metres or at some intervening distance.

Moreover, the patient who is orthophoric to-day may be heterophoric to-morrow; or he may have a normal muscular balance five days in the week, and have a manifest heterophoria the remaining two; he may be, to all intents or purposes, orthophoric as he begins his near work in the morning, and have a measurable degree of heterophoria before his desk is locked in the afternoon.

I have rarely failed to find some degree of heterophoria in the many persons I have examined experimentally—more than fifty—who were in good health, and who never had any symptoms referable to the eyes. I do not consider Stevens's phorometer, even in its latest form, to be the best

* Read before the Chicago Ophthalmological Society, April, 1894.

form of phorometer, but it is the one I used in the examinations just referred to, and I consider it at least a very convenient and fairly accurate instrument.

I conclude that to most people the condition of heterophoria is not an abnormal state, and that an innumerable host of Anglo-Saxons go through, and have gone through, life unaffected in any particular by the possession of a small degree of heterophoria, and we all know that a corresponding multitude never learn, so far as the presence of eye symptoms is concerned, until they consult an oculist for their first reading glasses, that they have always had or had early acquired a certain amount of hypermetropia, myopia, or astigmatism.

If practically everybody exhibits or can be made to develop heterophoria, we may well be prepared to hear that most epileptics are also heterophoric. Ranney recognizes this, and claims that the large number of epileptics under his care showed a higher percentage in number and amount of muscular defects than the average, a statement that I feel sure is correct.

Oliver's (2) testimony on this point is of value. He made a critical examination of fifty adult male epileptics, nearly all Americans. Extra-ocular movements were intact in all cases, except weakness of the interni—just about what would be found in any fifty average Americans who never had epilepsy.

It must also follow that the association of heterophoria with ametropia is a very frequent one, and this is the case. Some writers speak as if the correction of refractive errors caused a disappearance of the heterophoria. That, in my experience, is only true in the sense that a readjustment of muscular effort commonly follows a judicious prescription of glasses, so that the strain upon the weak or overtired muscles is lessened, or the burden is transferred to another set better able to bear it. True heterophoria, fundamentally, has to do with too long, too short, over-developed, under-developed, or, possibly, misplaced muscles—conditions not to be changed in a few days or weeks by the prescribing of glasses, or, it may be added, permanently affected by ordering lenses.

Some time ago I concluded that it was possible, especially from a study of the complaints of heterophoric patients who were or had been made emmetropic, to distinguish the symptoms of "*irritative heterophoria*" (I am responsible for this phrase) from those due to ametropia simply, but I have lately come to think, with Risley, that, aside from visual conditions, they are inseparable. I know that some writers have described the symptoms of the purely heterophoric asthenope. The most that I have been able to say is that, with a correction of the refractive error in a given case, bearing in mind the condition of the extrinsic ocular muscles and the sort of work the patient has to do, the direct visual, as well as the indirect or reflex symptoms, will, in the great majority of instances, disappear even in the presence of a heterophoria, even a marked manifest heterophoria, which was present before the glasses were ordered and persists after they have been worn for an indefinite period.

But there are important exceptions to this rule. It

often happens that asthenopic symptoms do not yield to the correction of the refractive error, or may yield only in part. The persistent symptoms in such cases may be entirely or partially due to the heterophoria, in which case a correction of the latter is urgently called for.

Just here I should like to draw your attention to a distinction which should in all fairness be made between cures of epilepsy brought about by treatment of the eye muscles and cures obtained by ordering glasses. It is admitted that the correction of refractive errors producing asthenopic symptoms has cured idiopathic epilepsy, and yet Dr. Ranney's practice is to immediately follow up his correction of the ametropia by tenotomies and advancements without waiting to see whether the milder and possibly quite as effective method of glass prescribing might not produce the desired result. Moreover, to the average reader the result, such as it was, must appear to be attributable to the operative part of the treatment. Equally permissible would it be after ordering glasses for asthenopic symptoms to cut the patient's eye muscles with a view of making him ideally orthophoric, and then to give the operation the credit of the performance.

As an example of epileptic convulsions and other reflex symptoms due to eye-strain and their relief by prescribing correcting lenses I report the following case:

I. F. has V. L. = $\frac{2}{3}$; V. R. = $\frac{2}{3}$. He is ten years old and one of eleven children in a perfectly healthy family. No history of mental disease in father's or mother's family. Five years ago had an attack of true epilepsy, and since then has been treated for epilepsy by a number of very competent medical men. Has an aura, screaming pain in head, and a sense of sinking. The attacks have come on as often as every week, and there have been intervals of a month or more. Lately has had an attack every two or three weeks. His eye symptoms are very many. Has intermittent convergent strabismus; has always had poor sight and great difficulties in reading, both in and out of school. His book is held close to his face; is often compelled to stop reading, owing to blurring that comes on shortly after beginning to read. Under atropine his refraction is $75^\circ + 1.50 + 4.50 = \frac{2}{3} - 75^\circ + 2 + 3.25 = \frac{2}{3}$.

Ordered him full correction, which he is now wearing with comfort. He can read for hours at a time and simply enjoys life. *But he can be made to see double with a red glass.* His abduction is 1° . Adduction, 20° . No hyperphoria. Snellen's test all right to $\frac{2}{3}$. His general health is very much better and he has not had a single attack of epilepsy since the first dose of atropine was put into his eye, six months ago.

I have now under treatment a somewhat similar case, except that there can be no question of heterophoria. The patient, a young man aged twenty-six years, with a convergent strabismus, has had several severe epileptic attacks and recently frequent seizures of *petit mal*. Asthenopic symptoms marked: has lost health and spirits and can no longer work. One eye is quite amblyopic (V. = $\frac{2}{3}$) and the correction of the refractive error (under atropine) has not improved vision in that eye. He has $+3.50$ D. in both eyes. I stopped his bromides completely, and since wearing his glasses he has been free of attacks and is greatly improved in all respects. He has been too short a time under observation to draw any conclusions from treatment.

In my opinion certain kinds of heterophoria, as well as heterophoria in certain kinds of people, may produce epilepsy, and in support of that assumption I wish to present the histories of two patients who used glasses for a long time before any interference with the eye muscles was attempted. In the boy's case I believe that the heterophoria was the cause of the attacks, and that its relief brought about a cure or temporary relief of the epileptic seizures.

M. B., aged thirteen years, a studious, music-loving, but delicate boy, has always been nervous, dyspeptic, and irritable. For nine years he has had epileptic convulsions. These attacks, which lately are frequent—on an average about once in two weeks—are preceded by a sensation of terror; they vary greatly in intensity and he often loses consciousness. Owing perhaps to the character of the aura and the time that elapses between the attacks, he does not fall down during the fit. He has known for some time that he sees better with one eye than with the other. Suffers much from headache, confusion of images, car sickness, and from attacks of nervous irritability, nausea, and dizziness, which last, however, are unlike the convulsive seizures. He habitually turns his head to one side in efforts to see.

Dr. Archibald Church, who examined him, thought that the whole train of symptoms resulted from his defective ocular apparatus. The condition of his eyes last October, when I first saw him, was as follows: V. L. = $\frac{2}{100}$; V. R. = $\frac{2}{100}$ —. Under atropine he had L. — 1.75° ; R. $20^\circ + 0.25$. I ordered him for constant wear — 1.50 — $110^\circ - 0.25$, in view of the condition of his eye muscles. With these glasses he obtained $\frac{2}{100}$ and J. i in either eye. The cover test shows marked insufficiency of the interni, and with a red glass before his right eye there is crossed diplopia, the images being at $20'$ about $1\frac{1}{2}'$ apart, and this double vision he can not overcome. Adduction, 1° to 3° ; abduction, 20° . Snellen's test shows that he does not get monocular vision at six metres, nor is he always able to read a test letter two inches behind a common pencil at twenty-five centimetres. Hering's test gives the same result at times. Fundus change insignificant. He wore the glasses for two months, meantime exercising his interni after the method of Savage, refraining from work and living mostly outdoors. During this time the asthenopic symptoms as well as his general health improved, but the epileptic attacks continued, and his eyes still gave him trouble, although with diminished frequency and intensity. Red glasses still produced diplopia, but he appears to obtain binocular single vision at his near point. I did several partial tenotomies on both externi, the result of which is that the patient's asthenopic symptoms have disappeared. He easily overcomes a 25° prism, base out, and diplopia can not be induced with the red glass. With the exception of a single attack—due to his getting overtired and excited—he has been free of the convulsions for four months. His general health is now greatly improved, and he is able to do work that he could not attempt before. I am encouraged to believe that in time he will get entirely rid of his epilepsy.

The second case is not so encouraging, and as I do not believe the heterophoria can be cured, I do not think the epilepsy will ever be relieved, unless perhaps by the suppression of the less distinct image of the weaker eye.

Mrs. J. C. O., aged thirty-six years, had occasional *strabismus convergens* when a child, and has worn glasses for near work since school days. Complaints of severe supra-orbital headaches with lacrimation, photophobia, confusion of print, and inability to read for more than a few minutes at a time. Her general health has never been very good. She does not come

of a neurotic family. When seventeen years of age had an attack of epilepsy, then one ten years ago, and for the past five or six years has had mild and frequent attacks. These are always preceded by a feeling of nausea; then consciousness is lost for a moment, if the attack be a mild one, and for a longer time if the attack is severe. Lately she has them several times a week. The attacks are slightly relieved by full doses of bromides. Her refraction is as follows:

V. R. = $\frac{6}{200}$; V. L. = $\frac{2}{200}$. L. $70^\circ + 0.50 + 6 = \frac{2}{200}$ — + $6.25 = \frac{2}{200}$.

V. R. = $\frac{2}{200}$.

There is now and then a marked tendency in the right eye to turn in during convergence. With the red glass before the better eye there is homonymous diplopia and the images stand two inches apart. She complains of occasional diplopia, especially while wearing her glasses. I gave her both partial and full corrections and made her use one eye alone without effect, except that the asthenopic and visual symptoms were relieved. Occasionally she has read an hour at a time and has had less headache on using one eye alone with correction. At the end of six weeks I did a free section of the right internal rectus and later on a partial tenotomy of the left with great improvement of the muscular condition. The red and white images, although never entirely coalescing, were close together. Snellen's test up to $\frac{2}{200}$ all right. There was no strabismus on near fixation. The eyes appeared and were to all intents and purposes straight. The heterophoria tests by the phorometer were never very satisfactory owing to the shifting character of the images. Finally, I sent the patient to the country for a month, during which time her attacks decreased in number and severity (to about one a week) but got worse on return to the city. She then went back to bromides and left me.

Dr. Ranney must either hold that epilepsy may be the sole sign of the heterophoria exhibited by the patient, or place a very small value upon the evidence for and against its producing symptoms other than the epilepsy, because in the twenty-five histories he has given us he says nothing whatever about the ocular symptoms. It is true that he gives us a table in which he shows that sixteen per cent. of his patients' eyes were emmetropic, but does not say what number complained of asthenopia. I regard this as an important matter, and consider its absence from the reports of Dr. Ranney's cases as especially unfortunate. I do not think we are justified in asserting that an organ that performs all its functions properly, that so far as the owner is concerned works in perfect order, can be held responsible for the production of such a marked and grave train of symptoms as constitute the so-called idiopathic epilepsy. The burden of proof still rests with Dr. Ranney and others of his way of thinking to show that epilepsy may be the sole eye symptom of heterophoria. The reply that cases (of which Dr. Ranney reports several) where glasses had first been prescribed without effect, or where emmetropia existed, were relieved or cured by muscle-cutting I shall consider later in this paper.

My experience of these cases is small and very discouraging. Whenever I am consulted about the eye treatment of an epileptic who is not aware of the existence of his eyes, who can read with ease in a railway train or with artificial light for hours, who never has any other asthenopic symptom, frontal headaches, or other ocular reflex trouble, I regard his eye treatment as a sort of ex-

periment that I would prefer not to make, and I should further be inclined to regard any favorable result obtained from the correction of his ametropia and heterophoria (*which, of course, are always to some degree present*) as probably due to other influences. I have, however, made the attempt in several cases with no result worth speaking of. My last and average case is as follows:

C. S., aged fifteen years, has had slight but very frequent attacks of epilepsy for several years—two or three a week. Family history good. No cause apparently for them. Has had all kinds of treatment without avail. V. $\frac{2}{3}$ in either eye. Has absolutely no symptoms that can be honestly referred to his eyes except a little marginal blepharitis. Has headaches only after an attack of epilepsy. Under atropine developed 1.25 of H., for which I ordered +1 for constant wear. Has a slight exophoria, $\frac{1}{2}^{\circ}$ for distance and 2° for near. After wearing glasses for three months I found his muscular balance at 20' to be about perfect, but there is still 2° or 3° of exophoria in accommodation. After wearing glasses for eighteen months without appreciable benefit I learned that he was being cured by somebody's patent medicine.

Referring to Dr. Ranney's twenty-five cases, it is noticeable that *the author operated upon the eye muscles in every instance*; if very little or no manifest heterophoria was found, he was always able to produce it. This error was almost invariably esophoria, developed by the prescribing of prisms, base out, to be worn for a certain number of days. Now, while I do not believe with Savage that a certain amount of esophoria for the distance is the usual and possibly normal concomitant of emmetropia and hypermetropia, I do know that it can be induced ("made manifest," if you will) in pretty nearly everybody who has not unusually strong externi, and that small degrees of it are as common among Americans as is hypermetropia of three quarters of a diopetre and less.

The majority of the patients were relieved or cured. Some of those relieved wore glasses prescribed for them, and the attacks of epilepsy usually recurred with greater frequency or violence whenever the glasses were laid aside. In most cases a slight degree of heterophoria remained after relief had been obtained. Among the failures were also a few cases where the heterophoria had been almost or entirely corrected. Some of them were probably cases of hystero-epilepsy.

Without assuming anything about these twenty-five cases except that they were selected from a much larger number (which is not given), I would like to examine them further. Nine were cured. I append a brief report of these cases with special reference to their freedom from fits after eye treatment, the nature of the latter, and the eye symptoms when given. The numerals correspond to cases in Ranney's paper:

I. From two to ten attacks daily to no attacks for twelve months. Ref. + 0.50 u. o. Tenotomies.

II. From four seizures in seven months to one attack in fifteen months. Diplopia with red glass L. 180° — 0.50 — 0.50. R. 90° + 0.50 $\odot$ pr. 3° for left hyperphoria. Patient could not do without glasses.

IV. Four severe attacks a year to no attacks in seven years. se of cure from glasses. Patient had + 2.50 u. o., and was

properly ordered a full correction. Had a manifest of 4° es., and after being duly tenotomized has been wearing his glasses constantly.

V. Two attacks a month previous to treatment to a slight attack during the past three years. L. 90° + 0.50. R. 180° + 4 $\odot$ cyl. — 1 ax. 90° , and the usual tenotomies for the relief of 11° of esophoria.

VI. This is in all probability a heterophoric epilepsy; there was practically no refractive error, but such marked weakness of the interni that the patient carried his head to one side; numerous convulsions to one slight seizure in thirteen years.

VII. From four a year to none in two years and a half. This patient had his full correction (+1) ordered for reading. Operated on for 8° — 15° es.

X. From a severe fit and numerous attacks of *petit mal* to no attacks for over two years. Ordered + 1 bds. (has + 1.50).

XIII. This was an emmetropic case, and for two days no heterophoria could be found, and her abduction was 6° , adduction 23° at the first examination. By prescribing esophoria prisms to wear, a "latent" esophoria was developed in ten days, corrected by tenotomy of the right internal rectus. The patient had no attacks for a year. This case reads to me very like a case of hystero-epilepsy, which would be very likely to improve or get well under the moral influence of *any* operation.

XV. Six seizures a year to none during six months. This appears to be a case proper for operation. Under the influence of esophoria prisms he developed diplopia with the red glass, and was practically emmetropic.

Thus, so far as we can judge from the imperfect history given of their eye symptoms both before and after tenotomy, three, and at the most four, of these twenty-five patients were cured by the operative treatment of their heterophoria.

The results in a few other cases may fairly, I think, be attributed to the careful correction at Dr. Ranney's hands of their refractive errors.

What proportion these cases of cure bear to the total number of patients subjected to eye treatment by Dr. Ranney we can not estimate without hearing further from him.

Finally, one must not forget the remedial effect of impressions made upon the nervous system of the epileptic by an operation coupled with the hope held out of relief by a new and curious surgical procedure. There can be no room for doubt but that to this latter agency alone the desirable result is due in certain of the instances offered by Dr. Ranney. It probably assisted in others.

I am in sympathy with Dr. Ranney in his objection to the employment of bromides in the treatment of epilepsy; as he says, "to benumb the cerebral centers by a drug so that they cease to respond to reflex irritation from any peripheral source is not curing the disease."

And while I do not think that eye-strain, and especially that eye-strain set up by the presence of latent esophoria, is as frequently a cause of epilepsy as Dr. Ranney would have us believe, yet in teaching the profession the as yet half-learned lesson that idiopathic epilepsy, so called, is very often the evidence merely of some peripheral irritation, and that one of the first duties of the physician consulted by an epileptic is to search for and remove all peripheral irritants, the able writer in the *Journal* deserves the gratitude of the profession.

(To be concluded.)

A CASE OF JACKSONIAN EPILEPSY.

CESSATION OF FITS AFTER OPERATION.

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G. P., a well-nourished negro miner, aged thirty years, was kindly referred to me for examination last January by my colleague, Professor George Benjamin Johnston. In consideration of the fact that his case presents numerous manifestly interesting points, and is such an excellent example of successful cerebral operative interference, I deem it quite worthy of a place among the somewhat similar cases already reported.

History.—Absolutely negative until two years ago, when he was struck with a brick on the left side of the head anteriorly. On recovery of senses, four days after, he found that he could just move his right arm and fingers; slightly better, the right leg. He was also unable to speak, though he understood all that was said to him. He had never been able to read or write. He had numerous "spasms," chiefly affecting the right hand, forearm, arm, shoulder, face, and very rarely the leg.

Six days after the accident he was operated upon by the attending surgeon of the mines "for a bone pressing on his brains," after which he gradually more or less completely recovered the power of motion and speech, until at the present date he is in this respect as well as ever. The fits have, however, continued to occur about twice a week. He has moderate headaches at times, usually located about the region of the old cicatrix, situated an inch behind and three inches and a quarter above the left external angular process.

The Fit.—In several I had the good fortune to observe and carefully test him. They begin in one of two ways, usually with numbness and tingling of the right hand, especially marked in the thumb and index finger, less so in the other fingers. This was followed in a few seconds by a turning in of the thumb. In fifteen seconds by stop watch alternate tonic and clonic convulsive movements occurred, beginning in the hand and spreading to the forearm, arm, shoulder, and face. The head and eyes turned to the right, and his power of speech was then lost. Consciousness was perfectly retained, and though aphasic, he thoroughly comprehended all that was said to him, and was able to communicate with me by signs and gestures of the left hand. There was no involvement of the lower extremity in the fits in which I saw him, and he still possessed complete voluntary control of the opposite upper and lower extremities. In fact, it was by this means that he was able to respond by signs on the application of the various tests after he had become aphasic.

Occasionally the leg also becomes involved and even, though very rarely, the left upper extremity. But under no circumstances has he lost consciousness. Concomitant with the above there occurred in the following order, as accurately as could be determined, the time intervals varying in the different fits: Loss of muscular sense, tactile anæsthesia, analgesia, loss of temperature sense, particularly marked in the hand and entire right face. Though the angle of the mouth was retracted, there was no involvement of the tongue or of the larynx.

After five minutes' duration all muscular movements in the affected extremity ceased and it remained paretic for fifteen minutes. The sensory and other phenomena disappeared in the following order: The aphasia in three minutes; the temperature sense returned at the end of five minutes; the analgesia had practically disappeared by eight, and the tactile anæsthesia by ten minutes; in thirteen, muscular sense was fully restored; and by the end of fifteen minutes the patient could move his

entire upper extremity, though he complained of considerable numbness and stiffness in the limb. The numbness continued for about half an hour.

In the second or unusual method of onset he first has a sensation of cramp in the epigastric region, followed in a few moments by loss of speech. This is followed by the various phenomena mentioned above, usually, however, more severe in character and with more frequent extension to the lower extremity or even of the right upper one. As before, no loss of consciousness. Physically, his examination showed a large triradiate cicatrix firmly adherent to the underlying bone, situated an inch behind and three inches and a quarter above the left external angular process. The right naso-labial furrow was slightly flattened.

There was a moderate tendency to slight superextension of the right little finger, though movement and muscular co-ordination were excellent, the patient being an expert banjoist.

Right grasp, 80; left grasp, 110.*

On consideration of the above symptoms it was concluded that the probable lesion was meningeal thickening with adhesion of the membranes either together or also with the cerebral cortex, its chief seat being about the genu of the Rolandic fissure and adjacent convolutions. The operation was performed January 20, 1894, by Professor Johnston and myself, after the usual preliminary antiseptic precautions had been taken.

The patient was anæsthetized with chloroform and a large curved scalp incision made. The flap was then turned down and an inch-and-a-quarter trephine applied over the region of the genu, previously determined by Horsley's method. On removal of the button of bone, the orifice was enlarged with a rongeur, especially forward and also downward. All the roughened bone, firmly adherent to the dura at the seat of the old lesion, having been removed, the thickened dura was vertically opened over the fissure of Rolando. On inspection, considerable dural thickening with adhesion of membranes together was found over the post-central, the precentral, and the posterior tip of the second frontal convolutions. A like state of affairs was present beneath the site of the old cicatrix and also a small adhesion over the lower extremity of the anterior central convolution. These were separated with a Horsley dural separator and parts of the thickened dura removed. The dura was then sutured with fine catgut, the scalp flap replaced and sutured, and the patient, after the application of an aseptic gauze dressing, returned to bed.

On the day following the operation he had one slight Jacksonian fit, but none since.

The temperature on the evening of the second day rose to 101.5° F., but fell to normal by the next morning and continued so. All sutures were removed on the seventh day, the scalp incision having completely healed. Two weeks after he was discharged with orders to attend the out-patient department, where he has been under my observation ever since.

The instructive character of such cases as this is practically self-evident. Not only do they clearly indicate the *sensory-motor* nature of the so-called motor area of the cerebral cortex, but also they possibly may furnish us with a means of more accurately increasing our knowledge of the exact functions of the various cell planes of the cortical gray matter, each layer of which, as Horsley and others suggest, very probably has its own particular function.

If a moment's reflection is bestowed upon the phenomena presented by an artificially induced cortical fit, one reasonably concludes that the first cells to discharge are

* Dynamometer by Thamm, Berlin.

those which first receive stimulation sufficient to cause them to discharge. At the present time, unfortunately, we know nothing of the absolute tension index of various kinds of nerve cells nor are we acquainted with the absolute reaction time of the same. Until, however, such are accurately determined, one may presumably correctly assume that those cells in closer proximity to the irritative lesion will be the first to manifest evidences of unstable equilibrium, and from these the discharge spreads either in the direction of the cell planes or perpendicular to them, and thus gives rise to a series of successive motor and sensory manifestations which, on certain occasions, can be carefully followed and timed.

Though a fair number of cases with somewhat similar lesions, either probable or verified by operation or autopsy, and presenting practically more or less the same variety of symptoms, have been reported by Starr, Seguin, and other observers, yet in none to which I have had access has complete and definite information as regards the time and sequence of the various motor-sensory phenomena throughout and at the termination of the attack been given.

In many of these, nevertheless, one can detect a striking regularity in the occurrence of a definite series of certain symptoms quite similar to those noticed above.

Of course, due allowance must be made for the element of uncertainty always attendant upon the results of tests made under such conditions. Great care and repeated observation will accomplish much and, as in my own case, permit of many verifications of the facts observed.

I therefore suggest that in future those observers who are fortunate enough to have such cases under observation will spare the time and patience to systematically observe all symptoms both as to time and sequence, and by so doing materially add to our present knowledge of the various functions of the motor-sensory cerebral cortex and likewise clear away much of the speculative fog that permeates its present-day physiology.

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ARE BACTERIA PATHOGENIC? SOME CONSIDERATIONS IN THE NEGATIVE.

By F. O. BROADY, M. D.,
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IN order to be pathogenic, bacteria must cause the disease under consideration. It would not be enough for them to complicate or intensify a disease in order to earn the title of pathogenetics; they must be more causative in their relation to disease than is excess of temperature or an ordinary breach of physiological law in order to truly occupy the position of pathogenetics in medicine. Though this view is the strict interpretation of the title above given, it will be seen that the attempt will not be made to strictly enforce such a view of bacterial potentialities.

It is fortunate for the sake of exact conclusions that the cultivators of this branch of investigation have early and clearly laid down certain rules which must be followed in order to determine a species of bacterium as being

pathogenic. The following rules are the ones generally accepted by bacteriologists: A bacterium is said to be the exciting cause of a disease (a) when the same bacterium constantly occurs in the tissues or the discharges and in sufficient numbers to cause the symptoms; (b) when this bacterium is taken from one diseased animal and introduced into another healthy animal, it shall then produce the same disease as the diseased animal suffered from; (c) when pure cultures, free from other organisms and reasonably supposed to be free from original morbid materials carried through several generations, produce in other animals the same disease. The considerations in the negative of this question will then be chiefly based upon the following objections: 1. That the methods of bacteriologists lead to ambiguous results. 2. That the reputed pathogenic bacteria can not cause their specified diseases, since they are not always present in these diseases, and in several instances have been present without causing the disease with which they are credited. 3. That there are several other good reasons for objecting to a bacterial pathogenesis.

Investigation of bacteriological methods will then be first in order. According to rule c, cultivation is an important test of pathogenesis, and of this the two most common methods are tube cultivation and plate cultivation. In tube cultivation a test tube of nutrient matter—gelatin, for example—is used as the soil on which to grow the cultures. Every instrument and article used in the investigations is scrupulously clean, and we will grant that no extraneous germs enter the experiments, be it from the air or other sources. After the tube of pure nutrient gelatin is obtained, a platinum wire is dipped into the blood, serum, sputum, or other fluid under investigation by which a very small portion of this fluid adheres to the wire. It is this small quantity that is to be cultivated; but remember that small as the drop of fluid may be, yet there is room for five billions (not millions) of bacilli tuberculosis to be included in this exceedingly small space.* If the pathological specimen is solid, a small portion is removed with a sharp scalpel. The fluid or solid specimen is now implanted in the tube of nutrient gelatin and then placed in some incubating apparatus for the purpose of enjoying the favorable conditions of suitable and unchanging temperature. In several days sufficient growth has taken place and the first generation has developed. This is used to furnish a small portion for inoculation of a second culture tube of gelatin and a small portion of this second generation is used to inoculate a third culture tube, and so on until the tenth or twelfth generation. Plate cultivations are practiced for the purpose of separating bacteria of different species. Here a small portion of the first generation of tube culture is mixed with fluid nutritive gelatin, well shaken, and then spread out on a small glass plate. This plate is kept in some incubator and the different bacteria will then spring up in separate bunches or colonies, each species growing in its own spot on the surface of the glass plate. The investigator can now choose from which colony

* Bujwid, quoted in the *New York Medical Journal*, March 10, 1894.

to take a small portion with which to inoculate the second, third, and succeeding number of nutrient tubes. Several successive plate cultivations may be practiced, but when the investigator thinks he has by these means isolated the one species of bacterium that he is studying, he says that he has obtained a "pure culture" of it and then proceeds to raise successive generations from this pure culture.

A culture, then, is called "pure" when only a single species of bacterium is present. If the investigator intends to convey the idea, when he uses the word "pure," that nothing else but the special bacterium is present, then the cultures are not pure. The material used for experimental inoculation on animals consists of this single species of bacterium, of which account is carefully taken, plus a portion of the culture medium and also plus other substances which may actually be the true disease-producing agents. By the plate and tube cultures the bacteriologist has attempted to remove by dilution all of the morbid matters outside of the "specific" bacterium found in the original inoculation material. This dilution is great; it is enormous. Pasteur has shown that when a single drop of the original inoculating morbid material is used in the manner just described to inoculate twelve successive culture tubes, the dilution of the original drop of blood or sputum is equal in the twelfth generation to a dilution as great as if the original drop had been diluted by a bulk of water equivalent to the size of the earth.* At first glance such an enormous dilution would seem to have practically diluted away all of the morbid matter in the original drop so that the bacteria could be studied alone, free from any foreign matter. But should an infected drop of blood or sputum be placed in a bulk of distilled water equal in amount to the size of the earth, we should not only lose all the foreign morbid elements of the drop, but also each and every one of the "specific bacteria." What dilutes part of the infected blood constituents dilutes them all, and if the foreign elements are diluted to a point beyond finding, then will also whatever bacteria may be present be diluted till not a trace could be found. It is only because the comparatively few inoculation bacteria of each generation of culture can grow and multiply to the great extent that they do that a small part of this growth can be used to produce a succeeding generation, by which it is possible for us to carry these experiments through so many steps and thus give the delusive appearance of an enormous dilution. But if the bacteria can thus increase and suffer no annihilating dilution, then there is nothing in the methods of bacteriology to prevent the other elements, which may be morbid, contained in the original infected drop of blood or sputum to maintain an equal degree of growth and thus be ever present in a culture tube, no matter what generation it may represent, all provided this other morbid element possesses life, and hence the power of growth. Whether it does or not is another question which may be entirely outside of bacteriology.

The whole matter of these objections hinges on the fact that bacteria are so very minute that no means have

been, nor may be, discovered by which we can isolate a few and entirely divest them of any other foreign matter, and, thus isolated, study them with reference to pathogenesis. The question of outside elements that may be the true pathogenics constantly occurs in the records of practical bacteriological pathologists and are readily found. In one popular text-book on pathology (Ernst Ziegler, vol. i, p. 314), Davaine, Coze, and Feltz are quoted as making one bacteriological statement which Koch and Gaffky say depends on the first-named investigators having used "impure cultures"; Wernich makes another statement which Gaffky disputes for the same reason, and the same happens Buchner and Nägeli, who are answered by Koch and Klein.

Returning to rules *a* and *b*, the following objections may be registered against the deductions widely accepted and based upon the methods used by bacteriologists. Rule *a* is that in order to label a bacterium as specifically pathogenic, this same micro-organism must constantly occur in the tissues or discharges and in sufficient numbers to give rise to the specific symptoms. The deductions inferred from this rule are actually false in that they accept concomitance for causation; in other words, because a specific bacterium is present in every case of a specific disease (if such is the fact), therefore to say that it is the cause, no matter how great the numbers may be, is illogical and can not stand. As well might we say that the leucocytes are the cause of itch because always present in large numbers in the local inflammation of that disease. Rule *b* has already been in part covered, but may again be referred to. It is that the specific bacterium (together with other possible morbid matters) taken from diseased animals shall produce in other animals the same disease. This excludes nothing and includes any number of other substances other than the bacterium which may be the efficient pathogenic agent; all it shows is that the disease under consideration can be transmitted by contact of one animal with another.

Now, putting the rules and teachings of bacteriologists to the test of clinical and practical experience, two questions clearly present themselves for an answer. One is, If specific bacteria are truly pathogenic, are they then always found in their reputed specific diseases? The second is, When found present, is the specific disease that they are said to cause also always at the same time present? As to the first question, if the specific bacteria are not always found in their reputed disease, how can they in their absence cause that disease? Evidence taken from the discoveries of practical bacteriologists ought to furnish sufficient answer. For convenience' sake we shall select three of the most deadly diseases concerning whose cause bacteriologists are well united and for which they have isolated, stained, mounted, and photographed the exciting cause; let these diseases be Asiatic cholera, diphtheria, and tuberculosis or lupus. The reputed bacilli of each are well known. As to Asiatic cholera and the presence of the comma bacillus, Professor H. Baillon* states that out of the twenty-four cases of Asiatic cholera found and investigated in Paris during the fall of 1892 but three cases

* Thomas's *Med. Dictionary*; article, Pathogenesis.

* In Merck's *Bulletin*, December, 1892.

showed the presence of Koch's comma bacillus, and none of the other cases had in common any other known bacterium.

As to diphtheria, the discoverer of its bacillus, Loeffler, states,* "on the other hand, in many cases of undoubted diphtheria these bacilli were not found. They did not produce any symptoms when applied to uninjured mucous membranes of several animals; no paralytic symptoms followed their inoculation; and finally, similar organisms, morphologically and physiologically indistinguishable from them, were found in healthy saliva." Dr. Armand Rüffer states that "the bacilli of diphtheria, discovered by Klebs in 1883 and Loeffler in 1884, are present in the most superficial parts of the membranes only," which of course is at a point the most distant possible from the location of the greatest injury, which is systemic and not local in its character. This is also the point most favorable for the lodgment of any of the many bacteria of putrefaction that are found everywhere in the air and would readily thrive where such an abundance of diphtheritic rottenness, together with suitable warmth and moisture, are so agreeably at hand. Loeffler also demonstrated the existence of his bacillus in the mouth and throat of patients as late as three weeks after the disappearance of the fever, which fact will again be referred to when we touch the second question.

The third disease to be reviewed is tuberculosis. Concerning this condition much has been written, and the bacteriologist is evidently ready to stake the reputation of his conclusions on this disease if on no other. Says Professor Hamilton: "The author has met with a case in which both lungs were rendered perfectly solid from an extremely acute eruption of tubercle, but in which not a vestige of any tubercle bacillus could be discovered after the most careful and prolonged examination. A remarkable fact was that none of the nodules in the lungs had caseated. . . . It is usually where the nodules have caseated and are in the process of disintegration that the largest deposits (of bacilli) are to be seen, but even in lungs in this condition it is sometimes impossible to demonstrate it (the presence of bacteria) with anything like the constancy that might be expected." (D. J. Hamilton, M. B., F. R. S. E., etc., *Text-book of Pathology*, vol. i, p. 419.)

As to the second question: When found in an organism, is that disease which the specific bacterium is said to cause also always at the same time present? If the specific bacteria can be present in sufficient numbers to be seen by the bacteriologist in ordinary investigation, and not by that fact produce the specific disease with which they are charged, the possible causative connection between them and the disease does not appear. Reference has already been made to the fact that Loeffler's *Bacillus diphtheriticus* is found on the fauces three weeks after the disappearance of the fever. The natural question is, How can the specific bacteria be there and not cause a relapse of the disease? Passing to another of the isolated species, the *Journal of the American Medical Association* (December, 1893) speaks of a former medical worker in the laboratory

of the Johns Hopkins Hospital who always had in his saliva an abundance of the *Diplococcus pneumoniae* from which he used to supply the other workers with samples for culture. And yet no mention is made whether he suffered constantly from some form of pneumonia, which then probably was not the fact. And again, Dr. E. L. Shurley, of Detroit,* reports the case of a monkey put under his own and Dr. Gibbes's care for study and experiment. The animal presented the clinical symptoms of nasal tuberculosis. A microscopic examination of the nasal discharges "revealed tubercle bacilli in large numbers. . . . Judge of our surprise when the post-mortem examination revealed no microscopic evidence of tuberculosis anywhere, not even in the turbinated bones, although all the bony parts of the nasal passages were softened." And again, Dr. J. H. Woodward, of Burlington, Vt.,† relates two cases of syphilis treated with mercury and iodide of potassium, which recovered "in a few weeks." They both suffered from persistent cough and the sputa of each was examined by Dr. C. S. Boynton, "a man competent to make such examinations," who pronounced both cases to be tuberculosis from the presence of its bacteria. "The results of the microscopical examination were positive," but the later history of the cases showed the diagnosis to be wrong. It may be objected that the simple presence of the "specific" bacteria does not always cause disease, and that this is admitted by bacteriologists. But these admissions open up the possibilities of a limitation of bacterial pathogenic power that may amount to annihilation. Professor N. Senn says:‡ "It has been conclusively shown by clinical experience that pathogenic spores may remain in the healthy body in a dormant condition for an indefinite period of time until by some accidental pathological changes the tissues in which they may exist have been prepared for their germination. Numerous experiments will be cited elsewhere in which injections of pure cultures directly into the circulation produced no ill effects in healthy animals, but when previous to the injection, or soon after, an injury was inflicted in some part of the body, the microbes produced their specific pathogenic effects at that point." We therefore have a condition in which thousands of living "specific" bacteria together with a comparatively large amount of their suitable food was injected at a given point without causing any appreciable ill effects. The process of injection must have caused at least some slight tissue destruction, which gives tissue *débris*, but this was not enough to invigorate the bacteria; more destruction was needed, a serious injury must be inflicted, and this injury must give rise to much *débris* in that locality before the bacteria increased in numbers. We know that a function of bacteria is to consume and disorganize organic *débris*, and what reason is there to state that they were not engaging in that function alone after the serious injury had produced tissue destruction and consequent *débris*? One thing, at least, clearly appears,

* In *Mittheilungen aus dem K. Gesundheitsamte*, vol. ii, 1884, quoted by Dr. Heine in *Micro-organisms in Disease*.

* In *New York Medical Journal*, November 7, 1891.

† In *New York Medical Journal*, December 16, 1893.

‡ In *Principles of Surgery*, 1890, pp. 139.

that while there was no great tissue destruction, there was no bacterial activity, but after tissue *débris* had been abundantly produced, bacterial nutritive activity became great; the cause is tissue destruction and the effect bacterial increase. Not only is this tissue *débris* dead, but it also very rapidly becomes inorganic by being acted upon by the chemicals circulating around it in the fluids of the body. Bacteria are vegetable organisms,* and it is only the vegetable living protoplasm that can appropriate and convert into its own substance inorganic elements—i. e., can consume them. Whatever the vegetable protoplasm consume, is inorganic, whatever the animal protoplasm consumes is organic.† As bacteria are vegetable and live off inorganic substances, they can not directly attack and devour animal tissues; it is therefore impossible for the *Bacillus tuberculosis* to produce tissue destruction by a devouring process, nor can any other reputed specific bacterium act in this manner. The only other manner by which bacteria can be of direct causative injury to the human body is by separating from their cell walls some substance poisonous to the animal tissues. The name ptomaines has often been given to such supposed poisons. But if the bacterial cell wall becomes disorganized into ptomaines and these act as tissue poisons, through which action we obtain tissue *débris*, no such condition could then obtain as mentioned by Professor Senn in which many bacteria were injected into healthy animals and there produced no disturbances. The disorganization of the bacterial cell wall, whatever the product may be, is in direct proportion to the bacterial nutritive activity, and, as Professor Senn's injections also contained some nutritive substance, probably gelatin, this furnished some food to the bacteria; this must result in some nutritive activity, and this to some disorganization of their cell walls, which, if the product were a ptomainic poison, would lead to some tissue destruction, and it would have taken but a short time before the relation between bacterial growth and consequent tissue destruction would have produced the reputed specific disease. The same method of reasoning with similar successive steps can be followed where the disorganization of the bacterial cell wall is considered dependent upon the favorable degree of heat of the body or upon some chemical process acting upon the cell wall and arising either from internal or external sources. Neither is there much foundation for the idea that the nutritive activity of bacteria robs the normal tissue elements of their food supply and thus starves them to death. Were this true we could not then have such a condition as dormant bacteria in the circulation, and, as bacteria can not be kept out of our bodies and are always present in some form, and the reputed specific germs must often be present, we could not escape a condition of the most horrible bacterial diseases, one following the other. A further objection may be registered—namely, that bac-

teria can not live off the same class of food as does the living protoplasm of the animal tissues, for the animal lives either directly or indirectly (as in case of carnivora) on organic substances, while bacteria, being vegetable, live on inorganic substances. But time and the diligence of many investigators will, no doubt, soon determine the approximate position of bacteria in the economy of nature.

118 OAK STREET.

THE COMPLICATIONS OF BRONCHITIS IN CHILDREN.*

By A. REICH, M.D.

THE most serious complications of bronchitis in children are (1) inflammation of the small tubes, and (2) inflammation of the capillaries, or broncho-pneumonia. They may be the outcome of the idiopathic bronchitis, but are most frequently met with as complications of the symptomatic variety in measles, whooping-cough, influenza, typhoid, diphtheria, scarlet fever, in order of frequency.

Post mortem we see, in bronchitis of the small tubes, the lung presents either nothing abnormal on inspection, or it may be dark in color all over and have some atelectatic spots, usually at the base posteriorly on both sides, or along the edges of the lobes; or we may find yellowish-white spots under the pleura, the size of a pin's head, which are soft to the touch, and yield pus on being cut into. On cutting into the lung, frothy serous fluid or muco-pus exudes, varying in color from yellowish white to dark red. At some points pure pus makes its appearance, which denotes the situation of a small bronchial tubule.

The lining of the bronchial tubes is the seat of inflammation; there are redness, congestion, shedding of epithelium, degeneration of the same, round-cell infiltration of the peribronchial connective tissue, and regeneration of cells. If this process continues, we very soon get inflammation of the capillaries, or broncho-pneumonia. This may be characterized by discrete consolidated lobules, or, if very extensive, constitutes the so-called pseudo lobar pneumonia. The consolidation is usually located posteriorly at the base, is wedge-shaped, reaches up to the lower angle of the scapula; frequently the lingula is primarily involved. Atelectasis is always present, as well as emphysema and some involvement of the pleura. The lung has a grayish appearance; the consolidated portion feels hard, is slightly elevated, while the atelectatic spots are depressed and dark red from congestion.

The emphysema is vesicular, seen mostly along the border of the lobes, can be distinguished by a marked elevation, elastic feel, and crepitation to the touch. On incision, frothy, reddish-brown fluid exudes from the congested portion of the lung; the small bronchi contain muco-pus, while the capillaries and vesicles contain pus; they may rupture into one another and form small abscess cavities, or even lead to pyopneumothorax. The pleura is covered with fibrinous exudate, which breaks very easily.

* See Ziegler, *Text-book of Pathology*, vol. i, pp. 274; Huxley and Martin, *Practical Biology*, pp. 409; and Parker, *Lessons in Elementary Biology*, London, 1891, pp. 180; Senn, *Principles of Surgery*, pp. 127.

† Landois and Stirling, *Physiology*, vol. i, pp. xxix; J. G. M'Kendrick, *Physiology*, Macmillan, 1888, vol. i, pp. 21 and 26; also, Kirkes's, 12th ed., pp. 10, and Draper's *Physiologies*.

* Read before the Section in Pædiatrics of the New York Academy of Medicine, March 8, 1894.

Fluid is rarely if ever present in any amount. On microscopic examination, the epithelium of the small bronchi and vesicles is in a state of fatty degeneration; there is round-cell infiltration in and around the bronchus; the lymphatics are inflamed—these latter two factors are, according to Dr. Finkler, causing inflammation and consolidation of the adjoining vesicles. Fibrin, so pathognomonic of croupous pneumonia, is also present, as well as white blood-corpuscles.

As to the mode of origin, Kronmayer states that the inflammation originates either from stopping up of the small tubes, or, what occurs more rarely, by primary affection of the delicate peribronchial connective tissue. In the origin after the first mode, we get the so-called inflammatory atelectasis—that is, falling in of the inflamed alveolar walls—in which inflammation originates from infection of the alveolus, with bronchial secretion containing pathogenic bacteria.

Lichtheim has shown that, after the stopping up of a bronchus with a mucous plug, atelectasis can develop very soon; two hours after stopping, the air is absorbed and the walls have fallen together. In inflammatory atelectasis the alveoli are, according to Kronmayer, first filled with round (migration) cells—swollen epithelium; the alveolar capillaries are over-filled with blood-corpuscles. Later in the disease the perialveolar and peribronchial connective tissue participates; hyperplasia of the same develops, compressing the alveoli, and change of their contents is the result. Pus cells appear, and, by fusion of the alveolar epithelium, multinucleated giant cells form. We also find leucocytes, red blood-corpuscles, and detritus. If the inflammation continues to spread to the interlobular tissue, the discrete lobular inflammation runs together, and the pseudo lobar pneumonia results.

In the origin by the second method—that is, the primary inflammation of the peribronchial connective tissue—with increased hyperplasia we also get swelling and shedding of the alveolar epithelium, and migration of leucocytes into the alveoli. The inflammatory process in the alveoli is consecutive to the interstitial inflammation.

This peribronchitis is followed not only by an exudation into the alveoli, but also by difficulty of its absorption, because the indurated tissue causes compression of the lymphatics and even complete occlusion. This process is followed by bronchiectasis, cirrhosis, and tuberculosis.

Looking over the literature, I find that Queisner, of Munich, examined the lungs of ten children; in five he found fibrin, although they had lobular pneumonia; in eight, the Fraenkel-Weichselbaum diplococcus; in three, the streptococcus and *Staphylococcus pyogenes aureus*; Friedländer, not found.

Monsier found the *Pneumococcus lanceolatus* (Talamon, Fraenkel), *Streptococcus pyogenes*; in a few cases the Löffler bacillus, staphylococcus, and even Friedländer's coccus.

Bronchitis of the small tubes may begin as such, or it may follow bronchitis of the larger tubes.

The temperature, which has been 100° or 101° in bronchitis of the larger tubes, gradually rises to 104° and remains in the morning. The skin is dry, hot, pale, or cyanotic. The alæ nasi are dilated, the auxiliary respiratory muscles are called into action. The respiratory act

gradually assumes the thoracic type; the lower part of the thorax, the intercostal spaces, and jugulum are drawn in, while the supramammary and infraclavicular regions are bulging on inspiration. The pulse is rapid—180 to 200—compressible, at times irregular, which fact, combined with somnolence, leads to erroneous conclusion of some brain complication. The pulse is very soft.

Respiration is very characteristic: the inspiration is getting shorter at the expense of expiration; there is a pause after inspiration. The expiration is accompanied by a groan due to involvement of the pleura. The respirations as they increase in number get very shallow and may reach 80 to 100, as observed in a case lately at Dr. Winters's clinic, while the pulse was 180, a ratio sufficiently pathognomonic—1:1.8. The child resents being disturbed for fear that it might excite a cough, which is now very frequent, painful, and troublesome. The expectoration is usually swallowed, and is then vomited or passed by the rectum. It is yellowish-white muco-pus, and may be tinged with blood. Diarrhœa is frequently present, which, in my opinion, is due to disturbance of the intestinal tract by the large amount of mucus and consequent acid fermentation.

As long as the inflammation is limited to the bronchial tubes fremitus is normal, but when large portions of lung tissue are involved the fremitus is increased.

The percussion sound is normal in bronchitis. Before consolidation reaches the surface of the lung very light percussion may enable us to diagnosticate the pneumonic change. It will be of little service if the affected portions are well surrounded by healthy or emphysematous lung.

On auscultation of the small tubes in bronchitis, where there is a great amount of congestion, we get only fine sibilant râles and diminished respiratory murmur, as in asthma, but very soon, sometimes in a few hours, fine subcrepitant and crepitant râles appear which change their location; besides, we hear the concomitant râles of the bronchitis of the large tubes.

If the inflammation has involved only few lobules or is deeply situated, the respiratory murmur grows harsher, gets broncho-vesicular, until eventually, when a considerable portion of a lobe is involved, the breathing is bronchial.

It is very interesting to find in the same lobe healthy, partially involved, and completely solid lung, distinguished by their characteristic physical signs. We see these children in a condition which changes frequently; they may feel fairly well in the early part of the day and be greatly distressed in the afternoon, and especially at night. The state of convalescence is reached by lysis; renewed exacerbation after a period of well-being is indicative of a fresh portion of lung being affected.

This condition may go on, the child getting weaker, the blood less oxygenated, until death, preceded by a general convulsion or complete paralysis, brings relief. Or the child may gradually recover after several intervals of improvement were followed by involvement of fresh portions of lung.

For a long time after recovery from lobular pneumonia there are diminished respiratory murmur and few subcrepitant râles.

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THE ACTION OF OXALATES ON NERVES AND MUSCLES.

IN the last number of the *Journal of Physiology* there is an interesting article on this subject by Dr. W. H. Howell, of Baltimore. The author has experimented upon frogs and terrapins with a solution containing sodium oxalate applied by irrigation through the capillaries of the nerves and muscles, the oxalate being thus brought into the most intimate contact with the tissue elements. With regard to the nerve fibers, the object of the experiments was mainly to determine the effect of the oxalates upon the nerve current and the negative variation, using these two phenomena as signs of the living structure and irritability of the fibers. In the experiments upon muscle, attention was directed chiefly to the effect of the irrigation upon the irritability of the muscle and its power of entering into the condition of rigor mortis.

The course of an actual experiment is described as follows: The animal was first washed out with normal saline, and then irrigated with the sodium-oxalate solution; when a four-to-one-thousand solution was used, the irrigation was kept up for about an hour. The sciatic nerve of one side was then exposed, and its irritability was tested by stimulation with induction shocks from a Du Bois-Reymond coil; it was then removed and its nerve current and negative variation were determined. The leg from which the nerve had been removed was ligated, its blood-vessels were washed out, and afterward it was irrigated for a number of hours with a solution containing calcium salts. Fifteen experiments were made and the results varied somewhat in character in each experiment, but the main facts were constant throughout, and the author has reached the following important conclusions: 1. Irrigation of a nerve with dilute solutions of sodium oxalate destroys completely its irritability toward electrical stimuli. 2. Nerve fibers after irrigation with sodium oxalate lose their demarcation current more rapidly than the normal nerve. 3. The loss of irritability in the neuro-muscular apparatus affects first the endings of the nerve in the muscle. 4. In the case of the heart, long-continued irrigation with a six-to-one-thousand sodium-chloride solution will suspend its irritability.

With regard to the action of sodium oxalate on the skeletal muscles, Dr. Howell says that when a frog is irrigated with oxalate solutions in the manner described above, the muscles are affected quickly; twitching movements of the toes begin in a few minutes and soon extend to the muscles of the legs and of the trunk. In his experiments the movements have varied in character, in some cases being violent, with strong convulsive contractions of the muscles and limbs following each other

rapidly. In other cases the movements have been much gentler. He has made twelve experiments, and used sodium oxalate in seven, potassium oxalate in three, and ammonium oxalate in two. As to the results of the experiments, he found that in every case the "oxalated" muscle went into rigor mortis, and in every experiment but one it began to shorten before the normal muscle. In the normal muscle the time of the first appearance of rigor mortis varied from sixteen to seventy-eight hours after removal from the body. In the "oxalated" muscle, although rigor had begun earlier, the limits observed were from less than an hour to eighty-eight hours. In the "oxalated" muscle the shortening often began quickly, perhaps immediately, after the muscle had been suspended, but usually this shortening was comparatively slight and soon ceased. The muscle might remain in this condition for a number of hours before the final rigor contraction began. In the normal muscle there was, in some experiments, a slight contraction, followed by a relaxation occurring before rigor definitively set in. The maximum shortening of the "oxalated" muscle was in every case less than in the normal muscle from the same animal, but the difference was often quite small. The energy liberated in the "oxalated" muscle during the onset of rigor was apparently less, so far as the performance of mechanical work was concerned, than in the normal muscle.

In the action of oxalate solutions upon muscle and nerve, Dr. Howell says there are certain points of resemblance which may be mentioned. In each, the irritability is quickly destroyed, but the tissue does not at once entirely lose the structure characteristics of organized matter. This is made probable by the fact that the nerve fiber still shows a demarcation current, and the muscle fiber is still capable of undergoing rigor mortis. The action of the oxalates, however, accelerates in each case the disorganization of the living structure of the tissue; rigor sets in more rapidly in the muscle, and the demarcation current disappears more quickly in the nerve.

Dr. Howell thinks the important fact brought out in these experiments is that the action of oxalate solutions upon skeletal muscle may be carried far enough to completely destroy its irritability toward electrical stimulation without injuring or, at least, destroying its property of entering into the condition of rigor mortis.

MINOR PARAGRAPHS.

A NEW JOURNAL OF ORAL PATHOLOGY.

WE have received the first number, dated April, 1894, of the *Revista Estomatológica*, edited by Dr. E. L. Whitmarsh and published in Madrid. The *Revista* is devoted mainly to dentistry, but it deals also with a wide range of affections of the mouth that are independent of the teeth, also with infection by way of the mouth. It gives promise of taking an important place in contemporary literature.

THE BILL TO DIMINISH THE FORCE OF THE ARMY
MEDICAL CORPS.

WE are very glad to learn that this bill, or rather this provision in the army supply bill, of which we have stated our

disapproval, is likely to meet with effective opposition in the Senate. No argument thus far advanced in support of it can be called anything but specious.

CARAPA AND CHAULMOOGRA.

We are indebted to the Department of Agriculture for some excellent specimens of photomicrography, by Mr. T. Taylor, showing the seed-fat of carapa and chaulmoogra. Such work is a valuable aid to pharmacology.

ITEMS, ETC.

The Medical Society of the State of West Virginia will hold its twenty-seventh annual meeting at Berkeley Springs on the 10th, 11th, and 12th of July. The programme includes the following papers: A Synopsis of Practical Bacteriology, with Demonstrations, by Dr. J. Schwinn (to be discussed by Dr. E. H. Fravel and Dr. C. O. Henry); Ectopic Gestation; its Early Diagnosis and Treatment, by Dr. S. L. Jepson (to be discussed by Dr. T. A. Harris and Dr. J. H. Brownfield); A Plea for the Old Physician, by Dr. C. F. Ulrich (to be discussed by Dr. L. R. Charter and Dr. T. B. Camden); Antiseptics in Normal Labor, by Dr. W. P. Hogue (to be discussed by Dr. N. D. Baker and Dr. R. W. Hall); A Witness in Court, by Dr. D. P. Morgan (to be discussed by Dr. T. M. Hood and Dr. J. E. Kendall); O'Dwyer's Operation, with Reports of Three Cases, by Dr. R. H. Cummins (to be discussed by Dr. J. Schwinn and Dr. D. P. Morgan); Legislation for the Prevention of Blindness, by Dr. G. A. Aschman (to be discussed by Dr. C. B. Blaubach and Dr. V. T. Churchman); The Doctor in Literature, by Dr. J. L. Dickey; On some of the Causes of Heart Diseases of Children, by Dr. L. D. Wilson (to be discussed by Dr. S. L. Jepson and Dr. Harriet B. Jones); and The Influence of Bacteriology upon Surgical Practice, by Dr. R. T. Reed (to be discussed by Dr. W. H. Sharp and Dr. J. M. Staunton). In addition to the foregoing a number of voluntary papers are expected.

The Death of Dr. P. Glennan, of Washington, which occurred on Sunday, June 17th, is noteworthy among other reasons as being that of the last surgeon of United States volunteers to be mustered out of the service and for twenty-six years the executive officer of the Freedman's Hospital. Dr. Glennan was born in the State of New York in 1826. He was the father of Dr. J. D. Glennan, of the army, and of Dr. A. H. Glennan, of the Marine-Hospital Service.

The Death of Dr. Ezra M. Hunt, of Metuchen, N. J., is announced as having taken place on Sunday, the 1st inst. Dr. Hunt was a graduate of the College of Physicians and Surgeons, of New York, and a much respected sanitarian. He was sixty-four years old.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from June 24 to June 30, 1894:*

TESSON, LOUIS S., Captain and Assistant Surgeon, is relieved from duty at Jefferson Barracks, Missouri, upon the arrival of EWING, CHARLES B., Captain and Assistant Surgeon, and ordered to duty as attending surgeon and examiner of recruits, Chicago, Ill., relieving APPEL, DANIEL M., Captain and Assistant Surgeon. Captain Appel, on being thus relieved, is ordered to Fort Porter, New York, for duty, relieving PRICE, CURTIS E., Major and Surgeon. Major Price, on being thus relieved, is ordered to Fort Custer, Montana, for duty, relieving EGAN, PETER R., Captain and Assistant Surgeon.

IRWIN, BERNARD, J. D., Colonel and Assistant Surgeon General. By direction of the President, his retirement from active service, June 28, 1894, is announced.

TORNEY, GEORGE H., Major and Surgeon, is relieved from duty as attending surgeon and examiner of recruits at Philadelphia, Pa., and will report in person to the Superintendent of the United States Military Academy, West Point, N. Y., for duty at that post, relieving HARVEY, PHILIP F., Major and Surgeon, who, after being thus relieved, will report to the commanding officer, Plattsburgh Barracks, New York, for duty at that post.

WILCOX, CHARLES, First Lieutenant and Assistant Surgeon, is relieved from duty at Angel Island, Cal., and ordered to the Presidio of San Francisco, Cal., for duty, relieving McVAY, HARLAN E., First Lieutenant and Assistant Surgeon. Lieutenant McVay, on being thus relieved, is ordered to Alcatraz Island, Cal., for duty, relieving RAFFERTY, OGDEN, Captain and Assistant Surgeon. Captain Rafferty, on being thus relieved, is ordered to Benicia Barracks, California, for duty, relieving GIRARD, JOSEPH B., Major and Surgeon. Major Girard, on being thus relieved, is ordered to duty at the Presidio of San Francisco, Cal.

MIDDLETON, JOHNSON V. D., Lieutenant Colonel and Deputy Surgeon General, is relieved from duty at the Presidio of San Francisco, Cal., and will report to the commanding general, Department of California, for duty as medical director of that department, relieving HARTSUFF, ALBERT, Lieutenant Colonel and Deputy Surgeon General. Lieutenant-Colonel Hartsuff, on being thus relieved, will report in person to the commanding general, Department of the Missouri, for duty as medical director of that department.

LIPPITT, WILLIAM F., Jr., First Lieutenant and Assistant Surgeon, is granted leave of absence for two months, to take effect upon the return of DE WITT, CALVIN, Major and Surgeon, to Fort Leavenworth, Kansas.

Promotions.

WRIGHT, JOSEPH P., Lieutenant Colonel and Deputy Surgeon General, to be Assistant Surgeon General with the rank of Colonel. May 16, 1894.

WOODHULL, ALFRED A., Major and Surgeon, to be Deputy Surgeon General with the rank of Lieutenant Colonel. May 16, 1894.

BILLINGS, JOHN S., Major and Surgeon, to be Deputy Surgeon General with the rank of Lieutenant Colonel. June 6, 1894.

HALL, WILLIAM R., Captain and Assistant Surgeon, to be Surgeon with the rank of Major. May 16, 1894.

TORNEY, GEORGE H., Captain and Assistant Surgeon, to be Surgeon with the rank of Major. June 6, 1894.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending June 23, 1894:*

WHITE, I. W., Passed Assistant Surgeon. Detached from the U. S. Steamer Lancaster and granted leave of absence for three months.

ANZAL, E. W., Passed Assistant Surgeon. Detached from the U. S. Steamer Lancaster and granted leave of absence for six months.

STREETS, T. S., Surgeon. Detached from the U. S. Steamer Alliance and granted leave of absence for three months.

URIC, J. F., Passed Assistant Surgeon. Ordered to the U. S. Steamer New York.

STEPHENSON, F. B., Surgeon. Detached from the U. S. Steamer Marion and granted leave of absence for three months.

KENNEDY, R. M., Passed Assistant Surgeon. Detached from

the U. S. Steamer Marion and ordered to the Mare Island Navy Yard.

ALFRED, A. R., Passed Assistant Surgeon. Detached from the U. S. Steamer Minnesota and ordered to the U. S. Steamer Pinta.

GUTHRIE, J. A., Assistant Surgeon. Detached from the Coast Survey Steamer Blake and ordered to the U. S. Steamer Minnesota.

WARD, B. R., Assistant Surgeon. Detached from the U. S. Revenue Steamer Vermont and ordered to the Coast Survey Steamer Blake.

COOK, F. C., Assistant Surgeon. Detached from instruction at the Naval Laboratory and ordered to the U. S. Revenue Steamer Vermont.

Marine-Hospital Service.—*Official List of the Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the Four Weeks ending June 23d, 1894:*

GLENNAN, A. H., Passed Assistant Surgeon. Granted leave of absence for five days. June 18, 1894.

WOODWARD, R. M., Passed Assistant Surgeon. To proceed to Cleveland, Ohio, for duty. June 11, 1894.

WERTENBAKER, C. P., Passed Assistant Surgeon. To proceed to Reedy Island Quarantine for special temporary duty. June 12, 1894.

STEWART, W. J. S., Assistant Surgeon. Granted leave of absence for thirteen days. May 29, 1894.

PROCHAZKA, EMIL, Assistant Surgeon. To proceed to New York, N. Y., for duty. June 11, 1894.

THOMAS, A. R., Assistant Surgeon. To proceed to St. Louis, Mo., for duty.

Society Meetings for the Coming Week:

TUESDAY, July 10th: Medical Societies of the Counties of Chautauqua (annual), Clinton (semi-annual—Plattsburgh), Greene (quarterly), Jefferson (semi-annual—Watertown), Madison (annual), Oneida (annual—Utica), Ontario (annual—Canandaigua), Schuyler (semi-annual), Tioga (Owego), and Wayne (annual), N. Y.; Norfolk, Mass., District Medical Society (Hyde Park).

WEDNESDAY, July 11th: Medical Society of the County of Seneca (annual), N. Y.; Tri-States Medical Association (Port Jervis, N. Y.); Franklin (quarterly—Greenfield), Hampshire (quarterly—Northampton), Worcester (Worcester), Mass., District Medical Societies; Kansas City, Mo., Ophthalmological and Otological Society.

THURSDAY, July 12th: Medical Society of the County of Fulton (semi-annual), N. Y.

SATURDAY, July 14th: Worcester, Mass., North District Medical Society.

Proceedings of Societies.

AMERICAN SURGICAL ASSOCIATION.

Annual Meeting, held in Washington on Tuesday, Wednesday, Thursday, and Friday, May 29, 30, and 31, and June 1, 1894.

The President, Dr. J. EWING MEARS, of Philadelphia, in the Chair.

The President's Address dealt only with matters of interest to the fellows of the association, referring to its previous work and the method of best carrying it on.

The Surgical Treatment of Empyema was the title of a paper by Dr. JOHN ASHHURST, Jr., of Philadelphia. The following summary was presented: 1. No operation is justifiable unless the presence of pus is certain; unless thorough treatment by medicinal agents, blisters, etc., has failed; or unless the symptoms, dyspnoea, etc., are so urgent as to demand immediate relief. 2. The first operation should consist of simple aspiration, with antiseptic precautions. 3. When the fluid has partially reaccumulated, as it almost certainly will do, if purulent, incision and drainage should be practiced. 4. Drainage is best effected by making two openings, one at the lowest point, and carrying a large drainage-tube through the cavity from one opening to the other. 5. Drainage should be supplemented by washing out the cavity with mild antiseptic fluids; when the lung has expanded and the discharge has nearly ceased, the tube should be shortened, the upper opening being allowed to heal, and the tube then being gradually withdrawn through the lower opening. 6. When the lung is so bound down by adhesions that it can not expand, resection of two or more ribs should be practiced (Estlander's operation, so called) in order to allow collapse of the chest wall and to promote healing by bringing the costal and visceral layers of the pleura into contact. 7. The more extensive operations of Schede and Tillmans, while probably justifiable in exceptional cases, are not to be recommended for general employment.

Dr. CHARLES B. NANOREDE, of Ann Arbor, did not see the advisability, in cases where pus was shown to be present by aspiration, of limiting the treatment to this operation. It was held that in a few cases this would be followed by cure, but he had never seen such a case. Where pus was present, he preferred to provide for its permanent evacuation immediately. He called attention to the danger of the drainage-tube becoming occluded by the pressure of the ribs, and he believed that in empyema of long standing some form of excision of the ribs should be employed. In irrigation, if the pus was not too much contaminated, sterilized water was sufficient, but, if necessary, an efficient antiseptic solution should be used, and, if there was danger of absorption, the chest could afterward be flushed with sterilized water. If provision was made for the free escape of pus, he saw no necessity for the removal of large segments of ribs.

Dr. T. F. PREWITT, of St. Louis, thought that the rule that no operation was justifiable unless the presence of pus was certain needed modification. As a rule, we could determine only that fluid was present, and could not be sure that it was pus. He thought it advisable to aspirate, even when serous fluid was present. If thorough antisepsis was maintained, this could do no harm. He had never seen it result in the formation of pus, and this method greatly shortened the duration of the disease. In empyema in children he had seen several recoveries follow aspiration, but none in adults. In children the pus did not seem to possess that thick, clotting character so common in adults, which required a free opening. In empyema in adults he invariably resected a rib, sometimes two ribs. Attention was called to the great necessity of caution in the administration of anæsthetics in cases of this affection. As to washing out the cavity, he always did that, using a weak solution of bichloride of mercury.

Dr. DE FOREST WILLARD, of Philadelphia, thought that the whole question was one of thorough drainage of an abscess cavity. Whether or not the ribs should be excised was to be determined by the question of securing free drainage. In children the ribs were so close together that removal of a portion was usually required. In the early treatment he favored the use of a clean aspirator rather than waiting for Nature to cause the absorption of a large quantity of

fluid. Such an operation did no harm and saved several weeks' time. He believed that washing as a routine measure did more harm than good. If the pus was decomposing it indicated that freer drainage was needed. If strong antiseptic solutions were employed, there was danger of renewed inflammation.

Dr. JOHN E. OWENS, of Chicago, called attention to the necessity, when evacuating pus from the chest or washing out the pleural cavity, of changing the position of the patient during the process in order that all the pus might be removed.

Dr. CHRISTIAN FINGER, of Chicago, considered that there were certain cases in which Schede's operation was required. It was appropriate after milder measures, such as incision, drainage, and Estlander's operation. He reported a successful cure where this operation had been performed after other measures had been resorted to during seven years.

Dr. ROSWELL PARK, of Buffalo, thought that the treatment of empyema should be based upon the same principles as were applicable to other abscesses. In acute cases, where we had to deal with streptococcus and staphylococcus forms of suppuration, it might be sufficient in a few instances to simply aspirate. A large proportion of cases of empyema, however, were essentially cold abscesses—tubercular abscesses. In these cases free incision, free drainage, and excision of a rib were required. In certain cases he had resorted to scraping with the sharp spoon, and in some had cauterized the diseased surface with a fifty-percent. solution of chloride of zinc. He reported several cases where death would have occurred had it not been for some such radical operation.

Dr. W. H. CARMALT, of New Haven, asked how far it was justifiable to go in the way of resection of ribs in these cases. He reported a recent case in which he had removed portions of five ribs, the longest piece excised being four inches and a half long. In these cases it was necessary to remove enough of the chest wall to permit of obliteration of the cavity. He had also used the sharp spoon in order to secure a fresh surface.

Dr. M. H. RICHARDSON, of Boston, said that the questions that arose in the treatment of empyema were different from those in ordinary abscess, for in the former condition there was an abscess with rigid walls. With regard to drainage, he had used double tubes provided with a valve, but considered them inapplicable and apt to cause increased trouble, for when air or pus was forced out through the tubes by coughing, a vacuum was established and the valve was held against the chest wall, preventing drainage. He believed that Estlander's operation was applicable only to certain forms of cavity, and that there were certain cases where the cavity involved a large portion of the thorax, in which Schede's operation was the only one applicable after the failure of Estlander's operation.

Dr. STEPHEN F. WEEKS, of Portland, Me., thought that Dr. Ashburst's rule to aspirate, especially in children, was a good one; sometimes that would result in a cure. The tuberculous cavity was to be treated differently from the cavity where this condition did not exist. Thorough drainage was sufficient in many cases. He called special attention to drainage by packing the cavity with sterilized gauze. In twenty-four hours he removed the gauze and washed out the cavity.

Dr. L. McLANE TIFFANY, of Baltimore, considered that the treatment of acute empyema was of more importance than that of the chronic form, as it was the more common. The most important points bearing upon treatment and prognosis were the character of the pus and its bacterial cause. The reason that the child's empyema often yielded to aspiration was that in

many of these cases the pus was simply a pure culture of the pneumococcus. In the adult we rarely saw the pneumococcus form, but there was a mixed infection. If the empyema was of the amœbic form, the patient would die. If empyema was due to the streptococcus, the odor was offensive and the cavity needed to be washed out carefully. If empyema was due to the staphylococcus, washing out was not required. Where there was time, he preferred to withdraw some of the fluid with the hypodermic syringe and have it submitted to bacteriological examination. While he used ether in general work, in these cases he preferred the use of a few whiffs of chloroform, which appeared in these cases to have a peculiarly happy effect. Only a very small quantity was employed. The employment of respiratory gymnastics was of much benefit in favoring the expansion of the contracted lung.

Dr. JAMES MCFADDEN GASTON, of Atlanta, referred to the natural tendency of the empyemic cavity to open spontaneously in the anterior part of the chest. He reported two cases in which this spontaneous opening had occurred and been followed by recovery.

(To be continued.)

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Meeting of May 9, 1894.

Ascitic Distention of the Abdomen mistaken for Pregnancy.—Dr. T. RIDGWAY BARKER reported the following case in order to prove the importance, if not absolute necessity, of making a careful and thorough examination of all women supposed to be pregnant before committing ourselves to a positive diagnosis:

In June, 1891, he first saw the patient, Mrs. M. N.; she was then eighteen years of age, white, and the mother of two children. There had been no history of any miscarriages. Her general health had been good, and her condition favorable for the development of the product of conception which she believed was present, menstruation having ceased in October of the preceding year. Inquiry had elicited the fact that her menstrual flow up to that time had been perfectly regular and unaccompanied by pain. Morning sickness had proved very annoying for the first three months, but later had passed away.

From inspection, abdominal palpation, and digital vaginal examination, the patient had been judged to be some six months pregnant, and the date of confinement set for the early part of August. On July 27th the speaker had attended Mrs. N., delivering her of a fine male infant which presented by the vertex.

Labor had been accomplished without incident or difficulty, and the lying-in period had presented no symptoms suggestive of any organic lesion of the kidney. In fact, it was fair to assume that at that time there did not exist any disease of that excretory organ.

The puerperant's pulse had been 72 immediately after delivery, but the temperature had not been taken.

He had visited Mrs. N. for ten days, when attendance was discontinued, as the patient had been able to be up and move about her room. Mrs. N. had not been seen again by him for over two years, when she had called at the dispensary and stated that in the first week in January, 1893, she had suffered from a miscarriage.

The product of conception that she had passed she presumed was of about three months' gestation. The cause of its expulsion he had been unable to determine, but had ascribed it to a catarrhal condition of the endometrium.

While carrying the embryo she had had a slight flow of blood each month, which she had imagined was her menstrual flow, though she remarked at the time it was of shorter duration and more scanty than usual.

The patient had failed to return on the day specified and had not been seen again until March 6th of this year. She had stated, on presenting herself at the clinic, that some months after her last visit to the institution she had imagined herself to be in the family way again, and had called to see a physician. The doctor, she reported, had told her that he believed her view to be correct as to her condition, and that he considered her about four months pregnant, and that her confinement might be expected in December. No vaginal examination had been made by him, however, nor had he palpated the abdomen, but had based his diagnosis simply upon the results of inspection of the uncovered ventral region.

The breasts had been exposed on that occasion and had been found to be large, full, and globular. The veins had been prominent and the areolæ well defined. Milk on pressure, she stated, had exuded from the nipples as in former pregnancies. At that time her feet had been considerably swollen and the œdema tended to extend up the limbs.

Morning sickness had been entirely absent. Leucorrhœa had been present, but no remedies had been directed toward its treatment. At each monthly period, the patient stated, she had had a scanty flow of blood, but thought nothing of it as she had had much the same discharge in a former pregnancy. She had not again called on her physician, as she had felt no anxiety, having passed through three confinements without difficulty.

When the speaker had seen Mrs. N. on March 6th, it was nearly three months after the date of her expected confinement. She was then suffering from nervous prostration, incident in a large measure to the worry occasioned by her delayed labor, as she was afraid something was the matter.

Her abdomen, she had stated, felt different from what it had ever done before. Inspection of the breasts had shown them to present what one might almost say was a condition typical of pregnancy. Even the colostrum had exuded on pressure from the orifices of the lactiferous ducts. On inquiry as to whether she had felt fetal movements, she replied that she had at times, but very slightly. No bearing-down sensations, however, or pain had been experienced.

A glance at her abdomen had shown markedly that it was not so prominent as one would have had reason to expect it would be in a multipara at full term.

On request, Mrs. N. had consented to lie down on the sofa in the dorso-recumbent posture, and as she proceeded to do so Dr. Barker had been impressed with the fact that the abdomen at once had become flattened and broader. This had made him suspicious as to the presence of a fetus, and he had at once proceeded to palpate over the region of the supposed pregnant uterus. The abdominal walls were flabby and the intestines were in contact with them in front but not on the sides. Carrying the examining hand downward toward the pubes, he had found the uterus wholly within the true pelvic cavity. It seemed about normal in size and no sense of tenderness had been elicited.

Evidently there had been no full-term fetus in that woman's abdomen. Having secured the patient's consent to a digital vaginal examination, he had proceeded to make the same, subject to the rules of asepsis. Inspection of the external genitalia had presented nothing characteristic. Passing his index finger up the vaginal canal to the cervix, he had found it to be elongated, hard, and fissured. The os was small and from it could be felt escaping a mucous discharge. A sound had been

passed into the uterus and its cavity had been found to measure from three to three inches and a half.

Search for shreds of membrane or other products of a late conception had failed to be productive of any result. The distention of the abdomen had been undoubtedly ascitic and not due to a natural growth of a pregnant uterus.

Further inquiry had disclosed the fact that not only had there been for several months œdema of the lower extremities, but also swelling of the face as well. This had been especially noticeable about the eyelids.

The urine had been passed in large quantities and very frequently. It had been of a pale yellow or lemon color; specific gravity, 1.010; of acid reaction. No albumin had been present. The sediment had been composed of mucus. There had been for many months a gradual, but none the less persistent, loss of flesh.

The eyesight had been very poor, so much so that the woman could scarcely read the newspapers. A kind of mist, as Mrs. N. had expressed it, floated before her eyes. Headache had not been a troublesome symptom, nor had there been any amount of pain in the loins. Sleep had been troubled and the patient not infrequently awoke in a fright.

Inquiry as to the health of her parents had elicited the statement that her father, under forty years of age, had died suddenly in the street, and that he had for some years suffered from dropsy. Her mother was still living and enjoyed the best of health. Mrs. N. had no brothers or sisters. It was not the purpose of the speaker to enter into a discussion as to the nature of the kidney lesion, but to lay special stress upon the error in diagnosis, which had resulted simply from a failure to appreciate and apply the golden rules of obstetrics governing the diagnosis of pregnancy. Had the first practitioner, who saw this woman, not limited his examination to the breasts, but extended it to the abdomen, and supplemented the same by a digital vaginal one, he would not have fallen into the error of diagnosing a case of kidney disease with ascites as one of pregnancy.

This case, he said, was a typical example of a "snap" diagnosis, and only too clearly proved that the thorough way, which called for inspection, palpation, auscultation, and digital vaginal examination, though more disagreeable, less brilliant, and tedious, was the only safe and satisfactory one in the long run.

Moreover, we saw how little dependence was to be placed upon the patient's statements as to her subjective symptoms. Mrs. N. had unhesitatingly told him that she had felt fetal movements, though they had been slight, on the occasion of his first visit, three months after the date fixed for her confinement.

Examination, however, had proved her sensations to be purely imaginary. She had believed herself pregnant, and therefore, knowing that she should have "quickened," she believed that she had recognized fetal movements.

While the mistake in diagnosis in this case had not resulted disastrously, yet it might, under some circumstances, have been made the basis of a suit for damages.

One might occasionally make some brilliant "snap diagnoses," but he might rest assured that disaster would surely follow if this course was pursued for any length of time.

Dr. J. M. DA COSTA said that he recalled a remarkable case that had occurred a few years ago in a woman who had borne five children. She had been convinced that she was pregnant and had made all arrangements for her confinement. She had had many of the symptoms of pregnancy—morning sickness, increase of size, and had felt movements. The only unusual feature was that at each month there had been a slight discharge of blood. This, while not common in pregnancy, was

not at all rare. Examination had shown the abdomen distended to the size of normal pregnancy. The uterus had been slightly hypertrophied and was three inches in length. It had been evident that the distention had been due to gas and that she had not been pregnant at full term. The woman could not be convinced that this was the case until, under appropriate treatment, the size of the abdomen had been reduced.

Dr. JAMES MITCHELL recalled a case which had occurred at the Philadelphia Hospital in a single woman who had desired to become pregnant that she might hold the man responsible. The woman had sworn that she was pregnant, but to make sure he had given her ether, and under the anæsthetic the distention had disappeared. The enlargement had been due to tympanites and to distention of the bladder in part.

A New Method for Reduction of Fractures of the Lower End of the Radius.—Dr. THOMAS S. K. MORTON read a paper with this title, and said that the particular method of reducing fractures of the lower end of the radius had proved so satisfactory during the past few years in his services at the Pennsylvania and the Polyclinic Hospitals and elsewhere, and in the hands of others to whom he had from time to time demonstrated it, that he now felt justified in giving to it wider publicity. The method was as follows:

The surgeon stood in front of the patient and interlaced his fingers beneath the supinated wrist and palm of the injured member, so that his two index fingers lay parallel crosswise beneath the lower end of the upper fragment of the radius. The palms of the surgeon's hands were then closed in upon the thenar and hypothenar portions of the patient's hand respectively, while the surgeon's thumbs rested parallel lengthwise upon the upwardly displaced lower fragment of the radius. The parts were thus firmly grasped by the surgeon while the following movements were made: The patient's wrist was excessively extended by carrying his hand upward. When superextension had thus been secured, the surgeon made powerful traction upon the wrist in the line of superextension. While this traction was maintained the hand was suddenly carried into full flexion, and at the same time powerful downward pressure upon the upwardly displaced lower fragment of the radius was made by the surgeon's thumbs opposed by the interlaced index fingers beneath the lower end of the upper fragment.

The excessive extension of the first portion of the movement had always, so far in the speaker's experience, loosened or disentangled the displaced lower fragment, while the subsequent traction, flexion, and direct thumb pressure had not yet failed to accurately force the lower fragment into its proper position. Separated epiphysis of the lower end of the radius was likewise easily reducible by this manipulation. For comminuted or complicated, or very oblique fractures extension and molding alone were called for in most instances.

Anæsthesia was unnecessary for making a single effort at reduction by the proposed method. The patient did not anticipate what was coming, the two movements were made with lightning-like rapidity in a small fraction of a second, and, in nearly every case, perfect reduction had been accomplished before the patient realized that he had been hurt. Should the manipulation fail to secure perfect reduction at the first attempt, he would not repeat the manœuvre until anæsthesia had been induced, for the pain of repeating it would be intolerable. Failing in one effort, then, he would etherize and try again, first this, and afterward, if necessary, any other method that seemed advisable to secure perfect reduction. But thus far in cases that had been seen within a week of the accident he had never had to anæsthetize since evolving the method mentioned; all had been reduced at the first attempt.

In cases older than one week, with displacement persisting,

he anæsthetized before making any effort at reduction. The new method might then first be resorted to, and would often be found the best means of performing both refracture and reduction.

For making a diagnosis he had also found a modification of this method most useful. If the surgeon would take the hand and wrist in which fracture was suspected into his hands, as above described, and, while the thumbs pressed firmly upon the lower end of the radius or first row of the carpus, make a series of gentle, quick, short flexions and extensions of the joint, rocking it through an arc of perhaps twenty-five or thirty degrees above and below the forearm as a horizontal plane, he would be astonished at the ease with which crepitus of the bones of the joint, and of any small or large bony or cartilaginous fragment, would be elicited. And, best of all, the diagnosis of these obscure fractures about the wrist would thus, after some practice, be brought out without giving unbearable pain to the patient. Indeed, he had often in this way, by the most gentle and practically painless manipulation, been able to clear up the nature of intricate injuries about the wrist.

By practicing the method upon a normal wrist a sufficient degree of expertness could readily be acquired; by it joint crepitation could be brought out in any wrist. It was well, however, not to practice too much or too often upon the same extremity, as excessive stirring up of the joint contents might originate a synovitis.

Dr. Morton said that he would be gratified to have reports of the experience of others who might be tempted to employ the method here put forth.

Book Notices.

A Text book of the Physiological Chemistry of the Animal Body, including an Account of the Chemical Changes occurring in Disease. By ARTHUR GAMGEE, M. D., F. R. S., Emeritus Professor in the Owens College, Victoria University, Manchester, etc. With Two Chromo-lithographic Charts by Spillon and Wilkinson. Vol. II. *The Physiological Chemistry of Digestion*. London and New York: Macmillan & Co., 1893. Pp. xix-4 to 528. [Price, \$4.50.]

THE first volume of this work was published fourteen years ago, and dealt with the physiological chemistry of the elementary tissues of the animal body, including the blood, lymph, and chyle. This volume considers the physiological chemistry of the digestive processes, including saliva and its actions upon food; gastric digestion; pancreatic digestion; the bile and the phenomena of icterogenic poisonous agents, including the composition and analysis of biliary calculi; and the intestinal canal and its secretion, as well as the chemical processes that have their seat in the intestines.

The author states that the work is based on an original study of the whole literature of the subjects treated of, and in his writing he has not taken the standpoint of a scientific chemist, but that of a physiologist who has paid special attention to those subjects that are of interest to the pathologist, the pharmacologist, and the scientific physician.

In the chapter on saliva the author reviews the catalysis theory of Berzelius, Liebig's modification of the catalytic theory, and the researches of Pasteur, Dumas, and others that have developed the present physiological theory. He describes the histology of the salivary glands, the chemical composition of the different varieties of saliva, and the action of the dia-

static enzyme of saliva upon starch, resulting in the production of erythrodestrins and sugar. The changes that the saliva undergoes in disease are mentioned and the methods of diastimetry are explained.

In the chapter on gastric digestion the histology of the stomach is reviewed, and there is an historical survey of the nature of gastric digestion and the character and properties of the gastric juice. The influence of the nervous system upon the secretion of the latter, and its physical and chemical characters, are mentioned. The author states that there is no complete and reliable analysis of human gastric juice. He considers that the method of Kuhne and Chittenden furnishes the most active preparation of artificial gastric juice. There is an interesting account of the attempts to separate pepsin and to establish its characters. A brief historical account of the acids of the gastric juice precedes a description of the color reactions. The researches of Ebstein and Grützner and Langley and Edstein regarding pepsinogen are summarized. He believes that existing evidence points to the border cells found in certain of the gastric glands as the seats of the formation of the free acid in the gastric juice, and he presents a modification of Maly's hypothesis as to the mode of production of this acid. The review of the various albumoses and peptones seems to be most complete. The phenomena of digestion in the living stomach lead to the consideration of morbid changes in the gastric juice. The chapter closes with succinct directions for laboratory work connected with gastric digestion.

The third chapter gives an able account of the pancreas in its relation to digestion. Dr. Gamgee believes that either a zymogen of the diastatic enzyme does not exist, or, if it exists, it differs from the zymogens of analogous ferments by its insolubility in water. The sections on lysine, lysatinine, and tryptophan give most complete accounts of these interesting bases.

The masterly account of the secretion, chemistry, functions, and pathology of the bile, in the fourth, fifth, sixth, seventh, and eighth chapters, is unsurpassed by anything we know of in the literature of physiological chemistry. The author cites various investigators who refute Rutherford and Röhrig's experiments regarding the influence of drugs on the secretion of bile; and, while he does not believe that their experiments are necessarily incorrect, he considers that the question should be reinvestigated with the aid of dogs with Schiff's amphibolic biliary fistulæ.

The ninth chapter deals with the histology of the intestinal canal and the character of the succus entericus. The latest researches have shown that the latter exerts no chemical action on the proteid constituents of food, but plays an important part in the digestion of the carbohydrates of the economy, completing, if necessary, the conversion of starch into soluble products and converting saccharose, lactose, and maltose into grape sugar.

In the tenth chapter Dr. Gamgee reviews the decomposition of the proteids and carbohydrates in the small intestine under the influence of bacterial action. These processes differ materially from those of ordinary putrefaction, and neither Brieger nor Baumann and Udransky were, under normal circumstances, able to find any of the so-called ptomaines in the intestinal contents. Ptomainogenous bacteria exist in the intestinal canal, and certain conditions of environment will undoubtedly result in the formation of ptomaines.

In the eleventh chapter there is a recapitulation of the chemical processes occurring in the small intestine.

The twelfth chapter reviews the character of the intestinal contents as they pass from the ileum into the large intestine, the final digestive processes in the latter, the processes that convert the contents of the colon into fæces, the micro-organisms of the colon and their products, and the fæces in health and disease.

We hope that the author may be able to present the profession at an early date with the third volume of his *magnum opus*.

A Practical Treatise on Medical Diagnosis for Students and Physicians. By JOHN H. MUSSER, M. D., Assistant Professor of Clinical Medicine in the University of Pennsylvania, etc. Illustrated with One Hundred and Sixty-two Woodcuts and Two Colored Plates. Philadelphia: Lea Brothers & Co., 1894. Pp. viii-17 to 881. [Price, \$5.]

RECOGNIZING the fact that modern methods of medical education demand that the student should be taught the expressions of morbid action by being brought into contact with patients in hospital wards and dispensaries, the author has aimed in this volume to furnish those directions for obtaining the direct and collateral data essential for diagnosis in the student's or the practitioner's daily work. He has paid special attention to research for objective phenomena in the physical, chemical, and biological changes in the tissues and secretions, because more and more attention is paid and more and more importance attached to the evidence afforded by these changes. Modern methods of research have possibly not yet succeeded in affording information enabling us to abort or cure disease processes, but they have materially aided us in attaining greater accuracy in diagnosis.

The volume is divided into two parts, the first devoted to general and the second to special diagnosis. In the first part are chapters on general observations, on the data obtained by inquiry, on the data obtained by observation, on bacteriological diagnosis, on the examination of exudations and transudations, and on morbid processes and their symptomatology. In the second part the diseases of special parts and organs are separately considered.

The different chapters are not intended to be exhaustive considerations of the subjects whereof they treat, but rather to describe those morbid conditions most frequently encountered, leaving elaboration of detail to special works. We believe that in a work of this character chapters on the general examination and diagnosis of diseases of the eye and of the ear are as essential as those on bacteriological diagnosis or on diseases of the nose and larynx, and we do not think that these latter chapters should be omitted.

The work that the author has done is good and thorough, and we believe that these characteristics will insure a favorable reception of the volume.

BOOKS, ETC., RECEIVED.

The Mother's Help and Guide to the Domestic Management of her Children. By P. Murray Braidwood, M. D., F. R. C. S., formerly Senior Medical Officer to the Wirral Hospital for Sick Children. London: The Scientific Press, Limited, 1894. Pp. viii-134. [Price, 2s. 6d.]

Part I. Essentials of Refraction and the Diseases of the Eye. By Edward Jackson, M. D., A. M., Professor of Diseases of the Eye in the Philadelphia Polyclinic and College for Graduates in Medicine, etc. Part II. Essentials of Diseases of the Nose and Throat. By E. B. Gleason, S. B., M. D., Surgeon in Charge of the Nose, Throat, and Ear Department of the Northern Dispensary of Philadelphia, etc. Second Edition, revised. One Hundred and Twenty-four Illustrations. Philadelphia: W. B. Saunders, 1894. Pp. xiv-290. [Price, \$1.] [Saunders's *Questions Compendis*.]

Atlas de laryngologie et de rhinologie. Par A. Gouguenheim, Médecin de l'hôpital Lariboisière, et J. Glover, Ancien interne de la clinique laryngologique de l'hôpital Lariboisière. Avec 37 planches en noir et en couleurs comprenant ensemble 246 figures

et 47 figures dans le texte. Paris: G. Masson, 1894. Pp. viii-48.

Manuel du médecin praticien. La pratique des maladies de l'estomac et de l'appareil digestif dans les hôpitaux de Paris. Aide-mémoire et formulaire de thérapeutique appliquée par le Professeur Paul Lefert. Paris: J. B. Baillière et fils, 1894. Pp. 7 to 228. [Prix, 3 fr.]

Les Universités des États-unis et du Canada, et spécialement leurs institutions médicales. Par le Dr. O. Laurent, agrégé suppléant à l'Université de Bruxelles. Vingt-deux figures et plans. Bruxelles: H. Lamertin, 1894. Pp. 13-14 to 311.

La Paralysie générale. Par V. Magnan, Médecin de l'asile Sainte-Anne, etc., and Paul Sérieux, Médecin-adjoint à l'asile de Villejuif. Paris: G. Masson, 1894. Pp. 5 to 193. [*Encyclopédie scientifique des aide-mémoire.*]

Régénération des os et résections sous-périostées. Par L. Ollier, Correspondant de l'Institut, etc. Paris: G. Masson, 1894. Pp. 5 to 180. [*Encyclopédie scientifique des aide-mémoire.*]

Examen et séméiotique du cœur. Signes physiques. Par le Dr. Pierre Merklen, Médecin de l'hôpital Saint-Antoine. Paris: G. Masson, 1894. Pp. 5 to 256. [*Encyclopédie scientifique des aide-mémoire.*]

A Method of Performing Rapid Manual Dilatation of the Os Uteri, and its Advantages in the Treatment of Placenta Prævia. By Philander A. Harris. [Reprinted from the *American Journal of Obstetrics.*]

Contribution à l'étude du bérubéri. Par le Dr. G. Nepveu, Paris. [Extrait du *Marseille médical.*]

Fourth Annual Report of the Eye, Ear, Nose, and Throat Hospital of New Orleans. January 1, 1893, to December 31, 1893.

Transactions of the Indiana State Medical Society. 1893. Forty-fourth Annual Session held in Indianapolis, Ind., May 11 and 12, 1893.

Enormous Oval Hæmorrhoid encircling the Anus. Whitehead's Operation; Entire Cure. By W. W. Keen, M. D., of Philadelphia. [Reprinted from the *Therapeutic Gazette.*]

Operation Wounds of the Thoracic Duct in the Neck; with a Résumé of the Two Prior Recorded Cases and Two Additional Cases. By W. W. Keen, M. D. (Read before the Philadelphia Academy of Surgery.)

Removal of the Gasserian Ganglion as the Last of Fourteen Operations in Thirteen Years for Tic Douloureux. By W. W. Keen, M. D., and John K. Mitchell, M. D. [Reprinted from the *Transactions of the Philadelphia County Medical Society.*]

Ligation of the Common and External Carotid Arteries and the Jugular Vein for Arterio-venous Aneurysm of the Internal Carotid and Jugular, with Division of the Optic Nerve of the Opposite Side, the Result of a Gunshot Wound. By W. W. Keen, M. D. (Read before the Philadelphia Academy of Surgery.)

Observations on Four Hundred Cases of Anchylostomiasis. By F. M. Sandwith, M. D., Cairo. (Written for the Eleventh International Medical Congress held in Rome, 1894.)

Non Nocere. By A. Jacobi, M. D. [Reprinted from the *Medical Record.*]

Some Anatomical and Surgical Relations of the Parts involved in the Operation of Intracranial Neurectomy of the Fifth Pair of Nerves and Removal of the Gasserian Ganglion. By W. J. Taylor, M. D. [Reprinted from the *Transactions of the Philadelphia County Medical Society.*]

Physiotherapy First. Nature's Medicaments before Drug Remedies; particularly relating to Hydrotherapy. By Edward Playter, M. D., Ottawa. [Reprinted from the *Montreal Medical Journal.*]

Two Cases of Brain Tumor: A Contribution to Cerebral Surgery. By Clarence Bartlett, M. D., and W. B. Van Lennep, M. D. [Reprinted from the *Hahnemannian Monthly.*]

A Contribution to the Pathology of Friedreich's Ataxia. By Charles W. Burr, M. D. [Reprinted from the *University Medical Magazine.*]

An Illustrated Dictionary of Medicine, Biology, and Allied Sciences, including the Pronunciation, Accentuation, Derivation, and Definition of the Terms used in Medicine, Anatomy, Surgery, Obstetrics, Gynecology, Therapeutics, Materia Medica, Pathology, Dermatology, Pædiatrics, Ophthalmology, Otology, Laryngology, Physiology, Neurology, Histology, Toxicology, Dietetics, Legal Medicine, Psychology, Climatology, etc., and the Various Sciences closely allied to Medicine: Bacteriology, Parasitology, Microscopy, Botany, Zoology, Dentistry, Pharmacy, Chemistry, Hygiene, Electricity, Veterinary Medicine, etc. By George M. Gould, A. M., M. D. Based upon Recent Scientific Literature. Philadelphia: P. Blakiston, Son, & Co., 1894. Pp. xvi-17 to 1633.

The Middlesex Hospital. Reports of the Medical, Surgical, and Pathological Registrars for the Year 1892. London: H. K. Lewis, 1894. Pp. viii-5 to 378. [Price, 2s. 6d.]

Resoconto clinico triennale della sezione chirurgica dell'ospedale infantile Regina Margherita in Torino per gli anni 1891, 1892, 1893. Dott. Annibale Nota, Chirurgo Primario. Torino: Tipografia Salesiana, 1894. Pp. 208.

Ueber Tolypyryn und Tolysal. Von Dr. Moritz Korner in Berlin. [Separat-Abdruck der *Wiener medizinischen Blätter.*]

Biography of Eminent American Physicians and Surgeons. Illustrated with Fine Photo-engraved Portraits. Edited by R. French Stone, M. D., Consulting Physician to the Indianapolis City Hospital and Dispensary, etc. Indianapolis: Carlon & Hollenbeck, 1894. Pp. xxii-729. [Price, \$8.]

Reports on the Progress of Medicine.

THERAPEUTICS.

By HENRY A. GRIFFIN, M. D.

The Treatment of Migraine.—H. Gradle (*Medical News*, March 3, 1894, p. 230) believes astigmatism to be the commonest cause of migraine, correction by glasses generally resulting in permanent cure. Next in frequency as producing migraine comes nasal disease, generally unilateral stenosis, to be treated naturally by removal of the obstruction. Intestinal catarrh seems to cause a smaller number of cases and yields to treatment chiefly dietetic and hygienic. Overwork sometimes bears a relation to the attacks which rest will remove.

In fewer than one half his cases no peripheral cause could be found. Of drugs, he finds cannabis indica the most reliable, from one fourth to one third of the cases receiving permanent benefit from its use, regardless of the cause of the migraine. Hering's extract is the most reliable preparation of the drug. If the drug proves effective its continued use twice daily will prevent a return of the attacks, and if persisted in for months often effects a permanent cure. Other drugs he thinks generally useless. Should cannabis indica fail to relieve the attack, "it can be stopped almost invariably by antipyrine."

The Treatment of Myxœdema by Thyroid Extract.—Shattuck (*Boston Med. and Surg. Journal*, Feb. 22, 1894) reports four cases so treated, in three successfully; in the fourth, of which the diagnosis was doubtful, unsuccessfully. The prepa-

rations used were sometimes a glycerin extract of the gland, sometimes the dried extract (Parke, Davis, & Company), of which fifteen grains, the equivalent of one lobe of a sheep's thyroid, were given twice daily as a maximum. This dosage had to be considerably reduced, for disagreeable symptoms resulted (pains in the limbs and back) after a few days of use, and a single dose of seven grains and a half at this time caused a severe anginal attack, which was repeated, the extract having been suspended, frequently during several weeks.

The dosage subsequently given was generally two to four grains a day of the dried extract, though subject to no strict rule, and no ill result occurred save occasional slight pains in the back or limbs. As a result of his experience Dr. Shattuck states that "it seems probable that the use of the remedy must be persisted in through life, and that larger doses will be required during the cold than during the hot weather." The dosage must be suited to the case by careful experiment, cases varying in their resistance to the drug according to their severity.

Thyroid Feeding in Exophthalmic Goitre.—Owen (*Brit. Med. Jour.*, Dec. 2, 1893, p. 1211) reports a typical case of the disease of twenty years' standing. Failing to receive benefit from other treatment, the patient was put on a quarter lobe a day of raw sheep's thyroid minced and flavored with a little salt and vinegar. Through a mistake a quarter pound was given daily for two days, with the result of causing dyspeptic symptoms, vertigo, and insomnia. These effects having spontaneously disappeared after a week's abstinence from the gland, the ordinary dose was resumed. From that time the improvement was continuous. In four months he was able to resume heavy work without suffering inconvenience. At the end of seven months the exophthalmia was scarcely perceptible; the goitre was gone. The pulse was 76. After this time the thyroid was continued in doses of a quarter of a lobe twice a week.

Opium as a Hypnotic in Old Age.—Dale (*University Medical Magazine*, February, 1894, p. 321) regards opium as the best hypnotic in the insomnia of the aged (over seventy), and gives it in the combination of morphine and Dover's powder, beginning with morphine, a twenty-fourth to a twelfth of a grain, and Dover's powder two to three grains, two or three times a week or every night. This he increases slowly as necessary, but finds that several years elapse before a dose larger than morphine a quarter of a grain and Dover's powder ten grains is required. The combination he thinks particularly valuable as causing no digestive disturbance. While young or middle-aged adults might suffer from deleterious effects from the treatment, old age seems exempt, and life in many cases seems to have been prolonged by the rest thus obtained.

Therapeutics of the Sulphites and Hyposulphites.—Jones (*Journ. of the Am. Med. Assoc.*, Feb. 3, 1894, p. 135), basing his action upon the well-known action of the sulphites and hyposulphites in putrefaction, offers the following propositions:

"1. Diphtheria, its systematic treatment with the sulphite of sodium, internally and also externally. It has been said by some that if the sulphite of sodium in a recent case of diphtheria be given in doses of twenty grains dissolved in a wine-glassful of water every two hours, for a period covering several days, the disease will be arrested. Let the truth or falsity of this statement be determined by actual experiment. Let, then, the sulphite of sodium be systematically used, both locally and generally, in the treatment of diphtheria.

"2. It has been affirmed that the hyposulphite of sodium given internally in regular doses, even in the presence of the poison in a yellow-fever epidemic, will completely ward off this

disease. I have no facts with which to prove this statement, but would advise that it be put to the test, as might easily have been done, as I suggested, in the recent epidemic at Brunswick, Ga.

"3. Similar assertions as to the prophylactic powers of sulphite of sodium have been made in regard to scarlet fever, measles, and typhoid fever. With reference to all these bold and highly important assertions, we have not a single recorded or well-authenticated observation, and hence I would urge upon the American medical profession the importance of investigation."

Quinine in Pregnancy.—Dimmock (*Lancet*, Dec. 2, 1893, p. 1379) expresses much doubt as to the initial oxytocic power of quinine, preferring to believe that its action in labor is rather as a nerve tonic, by which he also explains its supposed power as an emmenagogue. From his experience in India he has concluded that quinine may be given in large doses to the pregnant woman when suffering from malarial fever without producing abortion. When abortion has occurred in such cases he thinks its occurrence is to be attributed to the malarial poisoning and not to the quinine, of which the earlier administration would have cured the malaria and prevented the miscarriage.

A Mechanical Treatment of Phthisis.—Noble Smith (*Brit. Med. Jour.*, Oct. 21, 1893, p. 886), believing that an increase in the vital capacity of the lungs is directly antagonistic to the production and extension of phthisis, and regarding a stooping position and the consequent dragging down of the upper chest by the weight of the arms (which is particularly seen in debility) as commonly the cause of diminished vital capacity, especially of the apices, has employed a brace by which the shoulders are drawn back, the stoop is prevented, and the arms are supported. The increased expansion of the upper chest thus obtained soon results, in cases seen sufficiently early, in disappearance of cough and physical signs, and in marked amelioration or cure of the other symptoms. He recommends that the treatment be employed in connection with the other treatments at present in use.

The Effect of Piperazine on the Urine.—Stewart (*Therap. Gazette*, February, 1894, p. 86) finds the drug useful in the uric-acid condition, but is at a loss to explain its action, since by its use uric-acid excretion does not seem to be increased. He suggests, however, that it may act by transforming the uric acid into urea by oxidation or into bodies more completely oxidized than uric acid, such as alloxan or allantoin. The appearance of alloxan or allantoin in any quantity in the urine after the administration of piperazine might easily be detected, but increase in the urea would not be so easily discovered, its quantity being subject normally to great variations. He has seen bad effects from large doses of the drug (piperazine Bayer, seventy grains a day)—nervousness, apprehension, clonic spasms of the arms, abdomen, and legs, partial unconsciousness, muscular prostration, and inco-ordination. These symptoms subsided within a day or two, but uncertainty of gait from inco-ordination lasted several days.

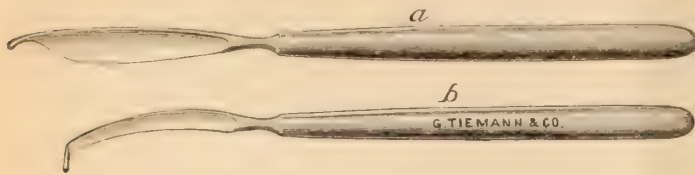
New Inventions, etc.

THE BEAKED KNIFE.

By J. S. WIGHT, M. D.,
BROOKLYN, N. Y.

Two forms of the beaked knife are represented in the cut. One is a straight scalpel, the other is a curved bistoury. The beak of the scalpel consists of the back of the instrument pro-

jecting about a quarter of an inch, and somewhat curved toward the blade (see *a*). In the case of the curved bistoury the beak meets the rest of the instrument at an obtuse angle (see *b*).



I have used this knife to open the sheaths of veins and arteries for ligation in the continuity and in amputations; also in opening the abdominal cavity, and in the excision of glands from the neck. In certain cases the beak takes the place of a grooved director. This instrument is made by George Tiemann & Co.

Miscellany.

Professional Remuneration.—The *Lancet* for June 2d contains a report of an address on this subject which was delivered before the Southwest London Medical Society by Dr. W. G. Dickinson, of London. The author thinks that, with regard to professional remuneration, there is one remedy without which all others are useless, and that is unity among physicians; this once attained, he says, the rest is comparatively easy.

The chief methods of professional remuneration now in vogue are the ready-money system, the rendering of quarterly, half-yearly, or annual accounts, and the contract system in its various forms—viz., public appointments, private appointments to clubs, etc., by the acceptance of which a practitioner becomes the servant of a lay committee, medical associations the members of which pay regularly into a fund for the remuneration of the medical attendants, and direct private contract between practitioner and patient.

The disadvantages of the ready-money system are the inconvenience to the patient of having to keep the exact amount ready for the daily visit, and the unpleasantness to the physician of having to remind his patient of his fee on each occasion. But, in many respects, the author says, this is the simplest and best system, provided the fee charged is an adequate one.

The contract system has its uses as well as its abuses, and the author thinks it may be reasonably and profitably adopted without loss of professional self-respect. In public appointments much might be done to raise the general estimation of professional services by increasing the salaries attached to these. Private appointments, he says, are degenerating, both as to the independence of the medical officers and as to the value placed upon their services by their lay masters. With regard to the associations for the provision of medical attendance on the poor which are not managed by laymen, but are controlled by medical officers, the author thinks it is the proper system of dealing with the working classes. If they are not thrown entirely upon charity, some provision is absolutely necessary to prevent their falling into the hands of the cheap dispensaries. The large majority of this class can not afford to pay a daily adequate fee, but can pay a small sum weekly, which, in the aggregate, would be fairly remunerative to the medical student. In the author's opinion, the only conditions upon which any provident medical association could be worked

without sacrificing independence or infringing any principle of medical ethics are as follows: 1. The management must rest with the medical staff, the members being only consulted. 2.

Any physician living in the district, who is not employed by a medical association managed by laymen, should be at liberty to join the staff. 3. The membership should be strictly limited to those who are unable to pay the minimum professional fee of the district. 4. Control should be maintained by the staff over all collectors and agents in order to prevent any soliciting for members. 5. The fees payable should be such as in the aggregate to be fairly remunerative for the work done. The author says that he does not know of any society that quite comes up to this ideal, but, he adds, it is by no means an impossible one, and he believes that a society managed in this way would bring in better fees than could be obtained from the same class on any other system, and it would not injure other practitioners in the neighborhood.

In direct private contract, it has been suggested that the patients should pay by the year. The advantages to them would be: 1. The medical bill would be avoided. 2. The principle of mutual assurance would come into play, and those who escaped much illness in any given year would help to pay for those who might have much sickness. 3. There would then be no reason for that delay in sending for the physician which now too often occurs and frequently leads to such serious results; the direct benefit to the public health would thus be very great. With regard to the annual retaining fee, it should bear a relation to the fee otherwise charged, and would not, of course, include confinements, serious operations, night visits, or consultations. In addition to the actual increase of the income derived from the adoption of this system, there would be the further advantage of the regularity of the receipts. The author thinks that there is nothing in such an arrangement which would impair the confidential relations that ought to exist between the physician and his patient. Interest and duty, he says, ought to coincide, but under the present system they often conflict. Physicians never hesitate in their preventive efforts, and it is hard that they should suffer in direct proportion to their success. It would, of course, he says, be absurd to expect that this form of contract would ever entirely supersede the present system, but he thinks that fifty or a hundred patients making fixed annual payments would form an excellent basis for any practice, and would be an advantage to both physician and patient.

The Use of Erysipelas Toxines in the Treatment of Malignant Disease.—The July number of the *American Journal of the Medical Sciences* continues the account of observations of this plan of treatment, and gives the following conclusions:

1. The curative action of erysipelas upon malignant tumors is an established fact.
2. This action is much more powerful in sarcoma than in carcinoma.
3. This action is chiefly due to the toxines of the erysipelas streptococcus, which may be isolated and used with safety.
4. This action is greatly increased by the addition of the toxines of *Bacillus prodigiosus*.
5. The toxines, to be of value, should come from virulent cultures and should be freshly prepared.
6. The results obtained from the use of toxines without danger are so nearly quite equal to those obtained from an attack of erysipelas that inoculation should rarely be resorted to.

Urethral Injections.—In the June number of the *Annales des maladies des organes g nito-urinaires* there is an article by

Dr. F. P. Guiard on the technique of urethral injections in which the author sums up with the statement that the one requisite of a satisfactory urethral injection is that it should come in contact with all the diseased points. So long as it was believed, he adds, that the sphincter ordinarily constituted an obstacle to the extension of blennorrhagia to the posterior urethra it was logical to seek to limit injections to the anterior urethra and to use syringes holding not more than from seventy-five to ninety grains; but now that the very great frequency of posterior urethritis has been demonstrated, it is evident that injections confined to the anterior urethra are insufficient. In the great majority of cases it is necessary to act upon the entire urethra simultaneously. Therefore, since the anterior urethra really has a capacity of from twelve to fifteen cubic centimetres, and sometimes seventeen, a syringe suitable for injecting the whole urethra should hold three hundred grains. It is generally easy to make the entire contents of such a syringe enter the urethra; if the procedure is skillfully managed it offers no inconvenience.

Bell's Paralysis occurring with Herpes Zoster.—In the *Lancet* for June 9th, Dr. H. A. Spencer, of London, relates a case which had come under his observation. The patient was a woman, about seventy years old, who had had good health all her life. She denied ever having had rheumatism before, although the knotty condition of her fingers testified to old rheumatoid changes. Some weeks before the author saw her, rheumatism, apparently subacute, had attacked the right knee joint; it lasted two or three weeks, and as it passed off from the knee it made its appearance in the right shoulder. Neuralgia of the right side of the neck and face followed, and two days before the author's first visit an eruption appeared, accompanied with burning and stinging. This was typically herpetic, and consisted of papules which followed the distribution of the superficial cervical plexus down on to the shoulder, radiating across the neck and running above and behind the ear. There was no headache; the hearing and sight were normal, and an examination of the ear showed a healthy tympanum and a clear meatus. The pain had been very severe behind the ear, and on the following day the patient complained of a pain in front of the ear, where there was some tenderness with swelling; a few papules also had appeared on the cheek. During the next three or four days the eruption became vesicular, and where it had encroached on the hair it became pustular. Five days after the author's first visit he noticed a drop in the angle of the mouth on the right side, and on the following day the lower eyelid dropped and other symptoms of Bell's paralysis were marked. The tongue was protruded straight; there was no falling of the soft palate and no deviation of the uvula; the taste was normal, and there was no tinnitus. The conjunctiva became œdematous on this side, projecting between the eyelids, but there was at no time any conjunctivitis. The treatment consisted of applications of the faradaic current to the face, kneading and rubbing of the muscles, and frequent bathing with hot water; bromides and iodides were given for some time. After some weeks of this treatment, the vesicles dried up and disappeared, and three or four months later the paralysis had entirely passed off.

The Relation of Slight Degrees of Albuminuria to Life Insurance.—Dr. G. V. Poore, of London, recently delivered an address on this subject before the Life Assurance Medical Officers' Association, a report of which appears in the *Lancet* for June 16th. The author thinks that it is a subject of great importance, and one which is of interest to medical officers and managers, many of whom are under the impression that there is a growing tendency among medical officers to keep away

business on the ground of albuminuria, which, to them, does not always seem a sufficient reason. Of late years, he says there have been several new tests for albumin, and, although, they are very delicate and very convenient, they precipitate peptones, albumoses, and alkaloidal bodies in addition to albumin, and he thinks that our knowledge of the clinical import of these bodies in the urine is too imperfect to allow a definite line of action to be taken in relation to the insurability of the lives of persons whose urine gives evidence of their presence. If a cloud appears when these tests are used, the older and commoner test should be resorted to in order to confirm the presence of albumin before recommending the acceptance or rejection of the risk. The discovery of slight and unsuspected albuminuria should, the author thinks, call for a second and careful examination, to be sure that some of the usual concomitants of such a condition have not been overlooked. A trifling hypertrophy of the heart, slight pallor, deficient body weight, etc., or any slight evidence of an old syphilis, at once assumes an importance when joined with slight albuminuria which otherwise it would not possess. In the case of candidates whose general appearance gives a doubtful impression, it is well to postpone recommendation until the urine has been examined. The discovery of slight albuminuria is thus of great importance, because it necessarily tinges all the facts of the case, including the family history, and gives an importance to trifles which otherwise might be neglected. If, on finding a trace of albumin in the urine, and a second examination does not show any adverse fact, there should be a third examination after an interval of a week or two in order to allow ample time for the subsidence of any temporary disturbance which may have caused the albuminuria. This examination will reveal whether the albuminuria is temporary or permanent. If it is slight and temporary, and the candidate is otherwise sound, with no suspicion of intemperance, and the family history is good, Dr. Poore would be inclined to recommend him as an average risk, but at the same time he would take into consideration trifles which, under other circumstances, he might overlook. If there is slight and permanent albuminuria, the author thinks that perhaps the majority of lives would have to be rejected, or, if they were accepted, an extra premium would have to be charged. The eligibility of a candidate for life insurance depends on a variety of circumstances, and, while on the one hand none of these can be neglected, it would be unwise to allow any one fact to outweigh all the others. Since it has got to be the custom to examine the urine of patients, there has come a knowledge of the fact, not only that albuminuria has become much more common, but that albumin may be temporarily present in the urine of those who show no reliable evidence of kidney disease, as the result of various causes, such as cold bathing, excessive exercise, etc.

Dr. Poore states that the death-rate from urinary diseases is tending to increase steadily, and that since 1858 it has doubled. A part of this increase may be accounted for by the increased knowledge and change of nomenclature, but he thinks that it is not all due to these causes, and so startling a fact should not be neglected. Clearly, then, he says, albuminuria is a matter which demands very careful consideration by examiners for life insurance and also by managers and actuaries.

The Care of the Mouth in the Sick.—*La Province médicale* quotes from *La Médecine moderne* an article in which it is stated that the condition of the mouth in sick persons ought to be watched very carefully, especially in children and in old persons, in whom secondary broncho-pneumonia is particularly favored by microbic changes on the surfaces and in the secretions of the mouth. In an article published in the *Zeit-*

schrift für Krankenpflege, Rosenbach urges the importance of this toilet of the mouth in patients who show redness and dryness of the tongue and of the mucous membrane of the mouth, or who have fetid breath, bleeding or incrustated gums, carious teeth, etc., also in those who are suffering from digestive derangements or are taking certain drugs, such as potassium iodide and mercury. But it is particularly those who are affected with febrile diseases who demand special care of the mouth. Microbes are always present in the cavity of the mouth, but it is only when the tissues are enfeebled and incapable of resisting that these microbes become truly pathogenic.

Rosenbach lays down the following rules: 1. For patients who are free from fever, who have no disorder of the digestion, and who have preserved their consciousness, the ordinary care of the mouth is sufficient. 2. For children and old persons, the care taken ought to be the more minute in proportion as they are taking less solid food. The mouth should be rinsed several times a day with warm water, to which is added a little common salt, tincture of myrrh, or cologne water, to stimulate the secretions. When there is a tendency to bleeding from the gums the lips and the gums should be rubbed twice a day with a rag bearing powdered boric acid. Patients who have false teeth should remove them as soon as loss of appetite or digestive disorders prevent their taking solid food. 3. In patients who are partially unconscious the mouth should be examined several times daily. If there are little ulcerations due to pressure of the teeth, they should be treated with a little boric acid or potassium chloride. Fissures at the junction of the lips will heal speedily if they are dried with fine linen and dressed with boric acid or vaseline. The mucous membrane of the mouth and tongue may be stimulated by rubbing it every two or three hours with a wet rag; if necessary, the back part of the tongue should be cleansed with a wad of cotton fastened to the end of a piece of wood. If the patient sleeps with the mouth open, the air of the room should be kept moist, and a bit of damp muslin placed before the mouth may be useful. 4. Feverish patients should always have something to drink at least once an hour—fresh water or lemonade; the attendant should not wait until they ask for a drink. Not only does the liquid prevent dryness, but it maintains the activity of the glands and the functions of the mucous membrane. Many patients avoid drinking or are afraid to drink by reason of the pain that the fissures and dryness of the lips cause them; consequently, from the very outset of the disease, it is advisable to rub the lips of febrile patients several times a day with vaseline or some other fatty substance. In case of a prolonged fever, the mouth should be treated with oil, some fatty body, or diluted glycerin.

The Treatment of Fractures of the Lower Limbs.—At the Twenty-third Congress of German Surgeons, according to an account published in the *Gazette hebdomadaire de médecine et de chirurgie* for June 16th, Dr. von Bardeleben stated that immobilization was getting to be used less and less since surgeons had come to realize that exact coaptation of the fragments was not indispensable to the formation of callus and the consolidation of a fractured bone; it was well known that fractures of the collar bone and of the maxilla did very well when it was impossible to procure exact immobilization. So also for some time it had been recommended to allow persons with a broken leg to walk. The author had tried this method in a hundred and sixteen cases, including complicated as well as simple fractures, and the results had been very satisfactory. In his opinion walking enlivened the circulation in the limb, favored the development of callus, and prevented atrophy. There was no fear of tumefaction in the limb—practically it never oc-

curred, especially when care was taken to apply the apparatus before it had time to make its appearance. Since the author had followed the practice of making his fracture patients walk, he had observed that delirium tremens had become much less frequent among the alcoholics, and that the occurrence of bronchitis was much less common in the aged. As he had just said, the treatment in question was practicable even in compound fractures, on condition of rendering the wound completely aseptic at the outset.

Kossobudki's Modification of Unna's Treatment of Hæmorrhoids with Chrysarobin.—In the May number of the *Australasian Medical Gazette* Dr. James McLeod gives a brief account of the case of a man, forty years old, who had suffered from internal hæmorrhoids for twelve years. Every few weeks they became prolapsed, especially if he indulged unduly in alcohol; at that time hæmorrhage often occurred, and then the hæmorrhoids did not trouble him until they became prolapsed again. In January, 1893, he began the daily use of a suppository containing one grain of chrysarobin, a quarter of a grain each of iodoform and cocaine hydrochloride, an eighth of a grain of extract of belladonna, thirty grains of cacao butter, and a sufficient quantity of glycerin. In all, he used forty-two of these suppositories. The hæmorrhoids gradually diminished in size until May, when they had disappeared, and up to the time of the report they had not returned and the man could now indulge freely in drinking without inducing an attack. He had gained in weight and was feeling better in every way. The author attributes an important auxiliary action to the adoption of the squatting posture at stool.

Galvanism in the Treatment of Frost-bitten Nose.—The *Prager medicinische Wochenschrift* summarizes an article on this subject by Dr. Hugo Helving, published in the *Therapeutische Monatshefte*. The author says it is best to apply both poles to the sides of the nose and to pass a moderately strong current for from five to ten minutes, moving the electrodes slowly. In most cases from five to eight cells of an ordinary constant-current battery will suffice. Stronger currents are of no advantage, for they irritate the skin. The immediate effect of this treatment is to redden the skin, and this redness lasts for several hours. After a few applications the redness disappears gradually, and especially the distressing burning and itching on coming into a warm place from the cold outer air. To overcome the morbid redness of the skin entirely, from ten to fifteen sittings are required.

The Treatment of Eczema Seborrhoicum of the Head.—*La Presse médicale* attributes the following suggestions to J. Braun: 1. Wash the head and face daily with the following solution: Twelve parts of precipitated sulphur, one part of camphor, six parts of mucilage of gum arabic, and one hundred parts each of limewater and rose-water. 2. At the end of a few days, when there has been observed an amelioration of the seborrhœa and of the eczema, apply to the diseased parts once a week an ointment of five parts of precipitated sulphur and twenty-five parts each of lanolin and vaseline.

An Antiseptic Varnish in the Treatment of Diphtheria.—In the *Journal des praticiens* for June 13th there is an abstract from a Paris thesis by Dr. Aschkinazi, on the particular use of an antiseptic varnish termed "stérésol" in the treatment of diphtheria. The varnish consists of one hundred and thirty-five parts of shellac, five of benzoin, twenty-five of tincture of tolu, three of essence of cinnamon, fifty of carbolic acid, and enough alcohol to make five hundred parts. The object is to prevent the access of air to the micro-organism, which is anaerobic, and to maintain a local antiseptic coating.

Original Communications.

A CASE OF SUBACUTE UNILATERAL BULBAR PALSY, WITH AUTOPSY.*

By ALFRED WIENER, M. D.,

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A BULBAR palsy of a bilateral type, taking either a subacute or a chronic course, is not a rarity. But when we come to examine the literature upon this subject, with reference to cases of a unilateral type, we find but few on record. Such have been reported by Pel (1), Ballet (2), Erb (3), Remak (4), Hirt (5), and a few others.

Ever since the year 1860, when Duchenne published his study on Progressive Glosso-labial-pharyngeal Palsy, more or less interest has been shown in regard to this subject. In 1870, Charcot and Leyden made known to us their views and established the fact that this disease was due to a chronic degeneration of the motor nuclei in the floor of the fourth ventricle. A few years later Joffroy (6) discussed another type of bulbar disease, quite distinct from the above, which he called pseudobulbar palsy. Very soon afterward Jolly (7) reported a most interesting case, with autopsy, of the pseudobulbar type, and now the literature abounds in the records of such cases. Among these are cases of Lepine (8), Eisenlohr (9), Oppenheim and Siemerling (10), and Ross (11).

I do not hesitate to add my case to the list of bulbar palsies, as the subject is still novel enough to warrant the description of every case in which a post-mortem examination helps to elucidate the clinical features of these palsies.

By the term progressive bulbar palsy we of course understand a paralysis of the lips, tongue, palate, and throat muscles, due to a degeneration of the nuclei within the medulla which give origin to the nerves which supply these parts.

The division of bulbar palsies into acute or apoplectic form (Leyden and Senator), subacute (Erb), and chronic (Erb, Duchenne, Wachsmuth) is the classification most generally followed now by our best authors, and I think it will answer for our unilateral cases as well.

In these unilateral cases the combination of symptoms varies: There may be present only a simple hemiatrophy and hemiparalysis of the tongue, with or without a hemiparalysis of the palate, pharynx, and throat muscles. It seems, however, that in all these cases the hemiatrophy and paralysis of the tongue are the most prominent symptoms, but those which give the patient the least annoyance. In former times this especially interested the anatomist, and as it seemed to occur frequently with tabes dorsalis, many authors, Ballet (12) among them, were of the opinion that it was extremely rare to find this condition without tabes. Charcot, Erb, and Strümpell soon corrected this erroneous idea, and proved by their enumeration and discussion of

individual cases that this symptom could not be considered a pathognomonic sign, but that it occurred often enough to necessitate, in such cases, an examination for other symptoms of tabes. Hirt states that most of the German authors up to 1885 considered a hemiatrophy of the tongue as a positive pathognomonic sign of tabes.

The case which I propose to discuss this evening is one which I presented before this society about nine months ago and it now claims our especial attention for the following reasons: 1. It is a case of subacute unilateral bulbar palsy verified by an autopsy. 2. Since so much ambiguity still exists with reference to the exact anatomical lesion which produces bulbar palsies, a statement of the facts in this case may throw a little more light upon this region of the brain in question. 3. The grouping together clinically of symptoms which result from an affection of these parts which naturally functionate together seems to me to be of great importance in arriving at a correct solution in regard to an anatomical diagnosis.

The patient, M. E., seventeen years old, was born of healthy parents. Found history negative. His mother is living and enjoying good health. His father died a short time ago with Bright's disease. The family history is negative with respect to any hereditary nervous disease. Patient has always been in good health up to two years ago, when he was taken down with a severe attack of perityphlitis, from which he recovered, however, after five weeks of illness. He had suffered from catarrhal pharyngitis more or less ever since childhood. Two years ago last spring the glands on both sides of his neck, in the region of the sterno-cleido-mastoid muscles, began to enlarge. In the summer of the following year (1892) an abscess formed in one of these glands on the right side, and had to be opened. After this the remaining glands began to create so much discomfort for the boy that after six weeks' endurance, on August 17, 1892, the glands on the right side, together with a large portion, as it seems, of the sterno-cleido-mastoid muscle, were excised at Mount Sinai Hospital. On September 1 of the same year a second operation was performed and the glands on the left side were removed. These glands were examined by Dr. L. Stieglitz and found to be of tubercular nature. The patient rapidly recovered, and nothing was noticed in the way of any disturbance of the parts which might have been involved in the operation. He was under treatment for his pharyngitis when, during the latter part of November, Dr. Friedenburg, who had taken charge of the case, discovered, on asking the patient to show him his tongue, that it deviated to the right side. Of this condition the patient was not at all aware until he was told of it. Shortly after this the patient experienced some trouble in swallowing. He soon became hoarse and coughed with difficulty. All these symptoms developed within ten days. It was in this condition that he was sent to Dr. Sachs's department at the New York Polyclinic. A thorough examination brought out the following points: 1. Very marked deviation of the tongue to the right side when protruded. 2. Distinct atrophy of the middle right half of the tongue; it appeared shriveled, and when taken between the fingers had a decided sponge-like feeling. 3. The electrical examination gave the following result: On direct excitation the faradaic response of the right half of the tongue was much weaker than the response of the left side. The contractions were not as prompt and sudden as in normal muscular tissue. On indirect examination a similar result was obtained, but the differences were not as marked.

* Read before the New York Neurological Society, December 5, 1893.

There was, furthermore, on direct examination, increased galvanic excitability of the right side, the contractures being of a slow and wave-like character. K. C. C. was greater than A. C. C. Taste and sensation were not at all affected.

When the mouth was held open and the patient breathed in a quiet manner, it was noticed that the raphé of the soft palate was pulled toward the left side, together with the elongated and slightly thickened uvula. The left arcade seemed to be smaller than the right, which hung down with the lower edge much farther than the left. The right arcade appeared broad and smooth. The left was drawn into longitudinal folds. As soon as he was asked to phonate "Ah" the paralysis became more evident and the whole palate looked very much deformed. The left side was contracted still more and the right side remained perfectly motionless. Electrical examinations gave similar results to those obtained in the tongue. Sensation and taste were normal. There was great difficulty in deglutition. It was not with the same difficulty, however, as in cases in which both sides are involved, familiar to us from cases of chronic bulbar palsies. He would choke and cough, and after several attempts he would succeed in getting down his fluid or food. Solid food could be taken much more readily than liquid.

On looking at the posterior wall of the pharynx I noticed what I thought at first to be the formation of a growth, probably a tubercular mass, situated on the left side. In reality this proved to be the normal wall of the pharynx which was pushed further toward the front, while the right side seemed to be pulled back and further away from my view. The electrical examination here was also similar to that of the tongue. Sensation was normal. The patient's voice was hoarse and low-pitched; it was difficult for him to cough.

The boy was sent to Dr. Gruening for laryngoscopic examination. His report states that dysphonia is due to disease of the right recurrent laryngeal nerve, causing a complete unilateral palsy on the right side. The patient is poorly nourished and exhibits marked swellings on the neck from tubercular glands.

Looked at from the front, the neck on the left side appeared to be a little fuller and springing slightly forward. The right side was very much flattened. The position of the "larynx" and "hyoid bone" was somewhat altered. The great horn of the hyoid bone on the left side was very prominent and easy to locate. On the paralyzed side it was hard to find, and also appeared to be a little lower than on the sound side. The larynx was twisted a little obliquely and no longer parallel with the median line. As the boy swallows, his larynx is drawn or pushed upward toward the right side. Two other muscles on the right side of the neck seemed to have been involved in this case, the sterno-cleido-mastoid and the trapezius. The former can hardly be excited either by the faradaic or galvanic currents, very few fibers responding. Either the greater part of the sterno-cleido-mastoid muscle had been removed during the operation for removal of the glands or the nerve supplying this muscle had been severely injured. Of the latter muscle only the upper portion was involved, and the faradaic and galvanic currents showed this very clearly, since the strongest currents produced only the slightest contractions. All the other cranial nerve functions were normal, and no other nervous disturbance in the body was anywhere to be found. Reflexes were everywhere normal, both superficial and deep.

The heart was normal, likewise the lungs. The pulse had ranged at different sittings between 90, 80, and 78 pulsations. Respiration 17, 19, and 18. Urine was normal. No change had taken place in these conditions up to the time when I presented him before this society, except that the reflex of the

palate and pharynx had disappeared, together with a very much diminished faradaic contraction on the right half of the tongue.

It was thus in this condition that I presented him before this society, and two months following the boy died. A summary of the notes taken until the time of his death is as follows: Patient began to grow very much weaker, and suddenly on March 26, 1893, he had an attack of respiratory failure and a pulse which increased in rapidity to 140 beats to the minute. He recovered from this attack partly, and then continued in a condition of slight respiratory difficulty. Complained of hot and cold flashes constantly. His speech became worse, so that he could hardly speak above a whisper. There was excessive salivation and continual drooling from the right side of the mouth. On April 11th I found that he could hardly protrude his tongue beyond the edge of his teeth, but during all his sickness, and even now, his lips remained normal and could be brought into perfect action.

The palate and pharynx remained normal on the left side. April 20th he had another attack of respiratory failure and died in a very short space of time.

Such was the history of this case, beginning as a unilateral palsy of the tongue, soft palate, pharynx, and larynx on the right side, the paralysis remaining stationary for a time, and then advancing into an incomplete bilateral palsy shortly before death.

The question which was of interest to us at the time when I presented him before this society was, Where could the lesion be situated which could produce such a palsy, and of what nature was it?

My arguments at that time were that the lesion might occupy one of three positions: First, a point just external to the exit of the pneumogastric and spinal accessory or vago-accessorius and hypoglossal nerves from the skull—viz., just behind the angle of the jaw; second, on the surface of the medulla; third, it might be nuclear.

First, as regards the lesion behind the angle of the jaw. Here these nerves are situated very deep and in close proximity to two very important structures—the internal jugular vein and the internal carotid artery. I reasoned thus: A tumor, say an enlarged gland, pressing upon these nerves in this position may produce such a palsy as the above-mentioned. I spoke of this fact in connection with a similar report by Gowers (13) of a case of deep tumor of the neck situated in this region. In my case I hardly believed this to be the site of the disease for the following reasons: First, there was no arterial or venous disturbance of any kind, which one would naturally expect to find if the lesion were situated in close proximity to the internal jugular vein and internal carotid artery; second, the glosso-pharyngeal nerve, which lies in close contact with these nerves in this region, was in no wise involved in all its branches; third, that all the various parts which are supplied by the nerves in question, and which would be included if the lesion were peripheral, have not been affected; fourth, the electrical reactions are such as one does not usually find with a peripheral lesion.

A lesion on the surface of the medulla was more probable. In a similar case of unilateral palsy involving the tongue, soft palate, larynx, and also the sterno-cleido-mastoid and trapezius muscles, reported by Mackenzie (15), he believed the lesion a nuclear one. But he concluded

that because the sterno-cleido-mastoid and trapezius muscles were involved, and the nerve branches supplying these muscles were close together on the surface, while the nuclei were some distance apart and could not be covered by a small lesion, the lesion was on the surface of the medulla.

Dr. B. Sachs (14) also mentions the fact that deposits either of a syphilitic or tubercular nature at the base of the skull may call forth palsies of the various cranial nerves, and in several of the cases cited I noticed that he records an involvement of the hypoglossal and vago-accessorius roots.

Now, as regards my own case, although we had a disturbance of the upper portion of the trapezius and of the sterno-cleido-mastoid muscles, which disturbance was accounted for in a satisfactory manner, I did not believe that the lesion in this case was confined to the surface of the medulla. For a lesion of such a nature as the one I supposed this one to be would have produced in this locality much more serious trouble than existed in this patient. There was no progression, nor were there any other symptoms present than those which I found at the first examination. Thus, from the general course of the disease, together with the symptoms present and cranial nerves involved, I excluded the surface of the medulla.

This brought us to the consideration of the only other possible localization of the lesion—viz., in the nuclei of the nerves which govern these palsied parts. These groups of cells form the conjoined nuclei of the spinal accessory, vagus, hypoglossal, and glosso-pharyngeal nerves, and only a very limited localized lesion in this part of the medulla is sufficient to affect them. All the facts in the case lent their support to this view. The onset, which was subacute, the slow course of the palsy—viz., one nerve after the other becoming involved, and just those parts becoming palsied which usually functionate together—and then the slight electrical changes, together with the exclusion of the only two other possible places where the lesion might have occurred, all this pointed to the bulbar nuclei as the probable seat of disease.

As regards the nature of the lesion I reasoned thus: A boy, seventeen years old, healthy in every respect up to the time that he was taken sick, shows marked scrofulous disposition, and has a mass of tubercular glands on both sides of the neck. This aroused the suspicion that the lesion in the medulla might be tubercular, and a solitary tubercle in the region of the nuclei would explain all the symptoms. I thought that this would be the case; in this I was mistaken.

Autopsy.—This was made six hours after the death of the patient.

Roof of skull was normal. Dura was fairly rich in blood. Pia was smooth and delicate. No extravasations anywhere to be found.

Base of Brain.—Pia delicate and subpial spaces are all free from exudation.

Cranial nerves appeared normal.

Medulla.—To all outside appearances this was natural in form and not at all asymmetrical. It was neither too soft nor too hard. There was nothing unnatural in the fourth ventricle. Striæ acusticæ appeared all thoroughly developed. No hæm-

orrhages and no exudation. Cerebellum normal in appearance. Surface of brain: Cortex was a little pale. Hemispheres were normal. I made a few cuts through the pons and medulla in the fresh state, but saw nothing in the way of a hyperæmia, softening, or doubtful coloring. The gray substance was strongly in contrast with the white. Blood-vessels all appeared natural to the naked eye. I placed the complete brain in Müller's fluid and allowed it to harden for microscopic examination.

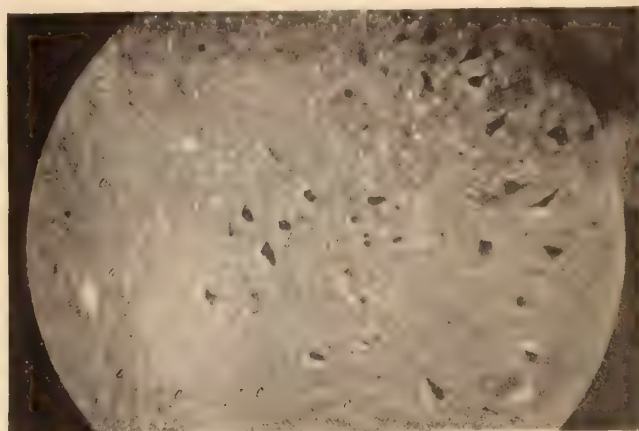


FIG. 1.—Hypoglossal nucleus, left side. Photomicrograph, from a section stained after Pal. *a*, median raphe; *b*, degenerated ganglion cells; *c*, lower limit of gray matter.

Microscopic Examination.—Transverse section through the speech center revealed nothing abnormal. Internal capsule likewise was found in normal condition.

The cruri cerebri were perfectly normal in appearance.

Third nerve nuclei also normal.

Sixth and seventh nerve nuclei normal.

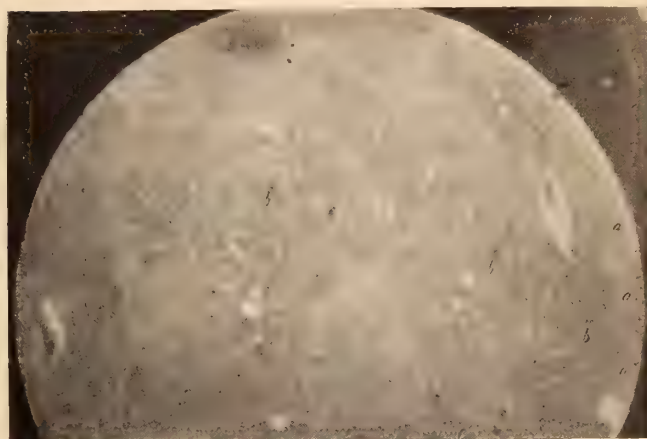


FIG. 2.—Hypoglossal nucleus, right side. From same section as Fig. 1. *a*, median raphe; *b*, degenerated ganglion cells; *c*, lower limit of gray matter.

The posterior longitudinal fasciculi are normal in appearance and well marked.

Transverse section through the pons showed nothing abnormal. The entire region, therefore, of the sixth, seventh, and eighth nerves I found perfectly natural in appearance. Ascending root of the fifth nerve clear and distinct.

As we approach the region of the ninth nerve, we find on the right side a very slight degeneration in the ganglion cells of this particular nucleus. The column known best as the respiratory bundle appears almost completely degenerated. On the left side everything in this region appears perfectly normal with the exception of the slightest portion of the lower and

outer part of the respiratory column, which appears to be affected in the degeneration. As we examine the sections from above downward, we observe a degeneration on the right side of the vagus, hypoglossal, and vago-accessorius nuclei, together with the completely diseased respiratory column. (See Fig. 4.) The vagus appears only very slightly affected, but the hypoglossal is diseased in a very marked degree. The ganglion cells are very much diminished in number, are abnormally rounded, and with but few cell processes left. They are in a very much atrophied state, shrunken and granular in appearance. Few that are left have any nucleolus present in their

and 2.) Again, the respiratory bundle appears degenerated in its lower and outer parts throughout its entire course (see Fig. 5), except in the region of the ninth nerve, as above mentioned. The vagus nucleus on the left side does not stain very readily and appears slightly degenerated.



FIG. 3.—Same as Fig. 2, with larger field.

cell body. The ground substance does not seem to stain as readily on the right side as it does on the left, and appears to be less compact.

The nucleus ambiguus and Roller's hypoglossal nucleus appear natural. The degeneration extends on the right side down to the lowest level of the hypoglossal nucleus, and is



FIG. 4. - Photomicrograph of completely degenerated respiratory bundle, right side. *a*, margin of bundle.

most marked just at the point of exit of the vagus nerve. On the left side this nucleus is also not quite natural. The cells are diminished in number and slightly degenerated. (See Figs.

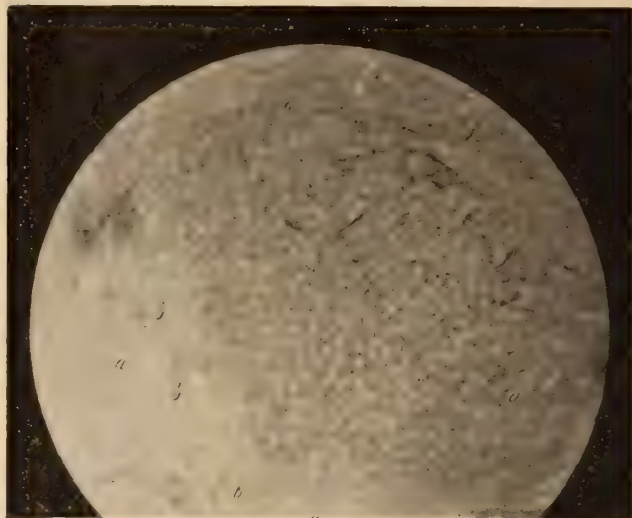


FIG. 5.—From same specimen as Fig. 3, left side. *a*, margin of bundle; *b*, degenerated lower and outer portion of column.

An examination of the intramedullary roots shows them to be decidedly less prominent and much thinner on the right side than on the left.

Thus, summing up all these facts of the microscopical examination, we find:

First. The motor cortex, internal capsule, crura cerebri, and pons of normal condition. The nucleus of the twelfth nerve on the right side very much diseased, while on the left side only in a slight degree. The nuclei of the tenth, eleventh—viz., vago-accessorius—slightly affected; a little more on the right side than on the left. The nucleus of the ninth on the right side only very slightly affected. The respiratory bundle appears completely degenerated on the right side, while on the left, in the region of the hypoglossal nucleus, only its lower and outer portions are diseased. In the region of the ninth nerve a few fibers are affected in this lower and outer portion.

The intramedullary roots of the ninth, vagus, vago-accessorius, and hypoglossal nerves are less prominent on the right side than on the left. Otherwise everything appears to be perfectly natural up to the exit of the first cervical nerve in the spinal cord.

Let us now review the clinical symptoms in the light of the autopsy. Within a space of ten days this patient developed a complete unilateral palsy of the right side of his tongue, soft palate, pharynx, and right recurrent laryngeal nerve. There was no disturbance of his respiratory or cardiac organs, or any other conditions present which should have called our attention to the affection of any other cranial or spinal nerve, except that of the ninth, tenth, eleventh, and twelfth nerves.

We find, on microscopical examination, a marked degeneration of the nucleus of the hypoglossal nerve on the right side, together with slight degeneration in the adjacent

nuclei, also a completely degenerated respiratory bundle. How is this to be explained?

It is unfortunate that authors still differ as to the interpretation to be given to these nuclei, more particularly those of the spinal accessory and glosso-pharyngeal.

Lockhart Clarke (16) remarks that the spinal accessory consists of two roots: a lower one, whose rootlets are collected into an external branch and supply the sterno-cleido-mastoid and trapezius muscles; an upper one, whose rootlets are collected into an internal branch, which joins the pneumogastric and is distributed to the larynx, pharynx, and palate. This has been proved beyond a doubt by the experiments of Reid (17), Bischoff (18), Bernhard and Beevor, and Horsley (19).

The lower roots arise with the spinal nerves from the anterior horns of the spinal cord, in the region of the cervical and upper brachial nerves. The upper roots have a double origin: first, from their own special nucleus, continuous behind the central canal with that of the pneumogastric, and the others from the proper nucleus of the hypoglossal nerve in front of the canal.

This close anatomical connection between vagus, spinal accessory, and hypoglossal nerves Clarke considers of the highest importance in regard to the light which it throws on the complex and associate movements concerned in deglutition, vocalization, and articulation. He suggests that these nuclei are the center for combined movements of these nerves.

It is just in this region that the lesion is localized in my case, with the additional involvement of the respiratory bundle, which does not appear to be mentioned in other cases as a natural consequence of disease of the hypoglossal nucleus (Turner) (20).

As the autopsy proves that the hypoglossal, vagus, and the vago-accessorius nuclei, together with the respiratory column, were diseased, and if it is furthermore true that the respiratory column contains root fibers from the vagus, vago-accessorius, and glosso-pharyngeal nerves, then it is probable that some fibers of the glosso-pharyngeal nerve are connected with the hypoglossal nucleus.

The symptoms on the right side point to an involvement of the glosso-pharyngeal nerve—viz., the loss of reflex in the palate and pharynx and the involvement of the pharyngeal muscles. On the left side there was no involvement of the glosso-pharyngeal nerve, according to the symptoms present, and we found the greater part of the respiratory column intact, except its lower and outer portion, which can readily be accounted for by the beginning degeneration of the vagus and vago-accessorius nuclei.

According to the facts in this case, I offer the following explanation: The slight degeneration of the vagus and outer vago-accessorius nuclei are not in comparison with that of the hypoglossal. Therefore, with really no involvement of the vagus at the commencement of the disease, as I have the right to suppose from the absence of symptoms characteristic of disease of this nerve, I consider the hypoglossal nucleus as the actual nucleus of origin for the supply of the tongue, palate, pharynx, and right recurrent laryngeal nerve. Also that the fibers of the glosso-pharyngeal nerve, which

were diseased in this case at the beginning, must undoubtedly take their origin, together with the vago-accessorius, in this region, and then ascend in the respiratory column to the glosso-pharyngeal region, and make their exit with that nerve. The very slight degeneration in the ninth nerve nucleus could not explain the symptoms which were present and characteristic of disease of this nerve. The left side helped to substantiate this theory, for here we had no pharyngeal symptoms present, but a beginning tongue and vocal-cord affection, together with, toward the end, a complete respiratory failure, and we find only a degeneration in the lower and outer part of the column, in the region of the hypoglossal nucleus. Can this, therefore, as I would suggest, be the course of the vagus fibers in the respiratory column? I do not want to establish this as a fact, for I think we are in need of more autopsies before this view can be confirmed.

The loss of reflex in the palate on the right side, which I also attribute as a loss of function on the part of the glosso-pharyngeal nerve, only took place toward the latter part of the disease. The very slight degeneration of the proper nucleus of the ninth, vago-accessorius, vagus, and twelfth nerves on the right side, together with the beginning degeneration of the twelfth and tenth nerve nuclei on the left side, were signalized by the first attack of respiratory failure. When this degeneration was about to complete itself on the other side, the patient had his second attack and died in a short space of time. Thus, after the first attack of respiratory failure, he had developed symptoms on the part of those nerves whose nuclei became affected in the latter part of the disease—viz., the ninth, tenth, and vago-accessorius on the right side, and the same nerves, together with the twelfth, on the left side.

As regards the glosso-pharyngeal nerve supplying sensory filaments to the front of the soft palate, palatine arches, or back of the tongue, I could not confirm this view, for with disease of this nerve in my own case there was no disturbance of sensation. Taste was likewise normal and not at all affected. It is generally believed that nausea is produced in a reflex manner through this nerve. I could produce the same in the beginning of the trouble, but later, when the reflex of gagging disappeared, this also vanished on the right side.

As regards the possibility of an accurate anatomical diagnosis, I think there should be no difficulty if we remember that paralysis of parts that functionate together, but have a distinct anatomical innervation, is due to nuclear lesion.

As regards the nature of the lesion, I did not find a tubercle nor did I find any tubercle bacilli in specimens which were stained for that purpose. All that was present consisted of a simple atrophy of the ganglion cells and fibers, motor in function. Whether this may be due to some toxic agent circulating in the blood, probably a ptomaine manufactured by the tubercle bacilli, I will leave for others to decide.

A consideration of the preceding facts in this case and autopsy leads to the following conclusions:

1. That the region of the hypoglossal nucleus gives

career, is to keep on hand a well-filled case of tablet triturates. In so doing, as already intimated, he will find it not only more profitable, but that it will increase his office practice more than any other method known at the present time.

Again, I would have you consult with the patient relative to the form of the medicine that is to be taken. The sense of taste varies markedly. To some a bitter medicine is agreeable; some will only take sweets in a liquid or pilular form; some are unable to swallow a pill or a capsule from not having been taught in their childhood to do so; some can take anything and everything in whatever form it may be administered; and some veterans, not more progressive than their physicians, will take the vilest decoctions of bitter drugs, believing that the nastier the medicine the greater its power. In other words, I mean that the physician should not only diagnosticate the disease of his patient but as well his tastes, wishes, and peculiarities, whether mental or physical.

It is useless for me to attempt to show all the advantages of such a system to those who have adopted it in their practice, but I will simply mention an instance, that of a specialist, who informed me that it was about the only way he could hold his patients sufficiently long to cure them.

Those who seek the services of a physician nowadays and go to a young doctor, which they do sometimes, consider his habits, manners, general appearance, and most of all the character of his medicines—that is, his ability to prescribe scientifically and palatably.

I would not have you infer that it is best to treat solely the imaginations of the patients with placebos of saccharum lactis or with the vapors of aconite, belladonna, bryonia, or depend entirely upon Nature. It is our duty to make an accurate diagnosis in every instance, and this is possible in ninety-nine cases out of a hundred at the present day, and to treat them according to the latest scientific principles with agreeable medicines. In the few cases where it is necessary to prescribe a medicine that has a disagreeable taste, it is not a difficult matter at this stage of our science not only to mask it in a harmless vehicle but also to make it pleasant.

At present we have the means within our power to dispel all unfavorable impressions in the minds of the young and the old, and make the proverb of Solomon the motto of the sick and the well to-day.

CONTRIBUTION TO THE STUDY OF THE ÆTIOLOGY OF VARICOCELE.

BY B. S. TALMEY, M. D.

THE dilated and tortuous condition of the spermatic veins usually known as varicocele is quite a common occurrence. According to Reclus,* varicocele is found in sixty to sixty-six per cent. in adult males. Jenckes† says that varicocele occurs in about one male adult in every ten.

According to Curling, of 166,317 recruits examined within ten years in Great Britain, 23·5 per thousand; of 2,165,470 recruits examined in France within ten years, 10·05 per thousand were found suffering from varicocele. Landouzy* found varicocele in sixty per cent. of males between ten and thirty-five years of age. Kocher† met with varicocele frequently in adults between sixteen and forty years, while he seldom found it in children and aged people. According to Wickham,‡ varicocele occurs with the greatest frequency between the ages of fifteen and thirty-five years.

In spite of its frequency the physician does not meet with varicocele so often, because it seldom causes much annoyance. Those affected with the disease are scarcely aware of it, and it is only occasionally found when the patient is examined for another disease. When, however, the varicose veins increase both in number and in size until they become greatly distended and hold great quantities of venous blood, then there is a sensation of weight producing great discomfort at times and occasionally sharp pains. The dull, aching pain is felt in the testicle, cord and in the back. The victim usually experiences a depressing effect mentally, out of proportion to the gravity of the case, and is often rendered incapable of attending to the active duties of life.

There are many reasons assigned for this disturbance, but almost all the writers upon this subject seek the cause chiefly in the anatomical relation of the spermatic veins to the other viscera. The fact that varicocele is oftener found on the left side seems to justify the opinion attributing it to the anatomical structure of the spermatic cord.

The spermatic cord is composed of nerves, arteries, veins, lymphatics, and the vas deferens. These structures are connected together by areolar tissue and invested by the fascia brought down by the testicle in its descent. The investments of the spermatic cord are the musculus cremaster, from the musculus obliquus abdominis internus. Inside of the cremaster muscle there is the fascia Cooperi from the fascia transversa. The inner surface of the fascia Cooperi is covered by the tunica vaginalis, which consists of a visceral and a parietal portion.

The nerves of the spermatic cord are the nervus spermaticus, from the N. genito-cruralis, and the nervus pudendus, from the plexus pudendalis. Other nerves from the N. sympathicus form the plexus spermaticus. This plexus, derived from the renal and aortic plexuses, is joined by filaments from the hypogastric plexus which accompany the artery of the vas deferens.

The lymphatics of the spermatic cord form several large trunks which, accompanying the blood-vessels into the abdomen, terminate in the lumbar glands.

The arteries of the spermatic cord are the arteria spermatica, from the aorta abdominalis; the arteria vas deferens, from the arteria vesicalis superior, and the arteria cremasterica, from the arteria epigastrica profunda. The

* *Gazette hebdomadaire de médecine*, 1893.

† *Internat. Medical Magazine*, Philadelphia, 1893.

* *Du varicocèle et de la cure radicale de cette affection*, Paris, 1838.

† *Deutsche Chirurgie*, vol. 1.

‡ *La résection du scrotum*, 1885.

spermatic arteries are two slender vessels of considerable length which arise from the front of the aorta below the renal arteries. Each artery passes obliquely outward and downward, behind the peritonæum, crossing the ureter and resting on the musculus psoas, the right artery being in front of the vena cava inferior, the left behind the flexura sigmoidea. On reaching the margin of the pelvis they pass each in front of the corresponding arteria iliaca externa and are directed outward to the internal abdominal ring. Accompanying the other contents of the spermatic cord along the spermatic canal to the testes, they become tortuous and divide into several branches, two or three of which accompany the vas deferens and supply the epididymis, while the others pierce the back part of the tunica albuginea testis and supply the substance of the testes. The artery of the vas deferens ramifies upon the coats of the duct, anastomosing with the arteria spermatica near the testes. The arteria cremasterica supplies the cremaster and other coverings.

The spermatic veins emerge from the back of the testes and, receiving branches from the epididymis, form the branched and convoluted plexus pampiniformis which constitutes the chief part of the cord. They ascend in front of the vas deferens, entering the abdomen through the inguinal canal. Then they unite to form two branches which ascend on the musculus psoas behind the peritonæum, lying one on each side of the arteria spermatica. Finally, they unite to form a single trunk which terminates on the right side in the vena cava inferior at an acute angle, on the left side in the left renal vein at a right angle. According to Gray * both veins are provided with valves. Jenckes † claims the absence of a valve in the left spermatic vein at its entrance into the corresponding renal vein. Henle ‡ says the valves in the left side are imperfect. Clapp § thinks that the valves in the right side are more numerous.

Thus formed, the spermatic cord extends from the internal abdominal ring, where the structures of which it is composed converge to the back part of the testicles. In the abdominal wall the cord passes obliquely along the inguinal canal, lying at first beneath the musculus obliquus abdominis internus and upon the ligamentum Poupartii, having the aponeurosis of the obliquus abdominis externus in front of it and the conjoined tendon behind it. It then escapes at the external ring and descends nearly vertically to the scrotum.

By this spermatic cord the testicle is suspended in the scrotum, which is invested by three tunics. The tunica vaginalis is the serous covering of the testes derived from the peritonæum. It consists of a visceral portion—the tunica vaginalis propria—which covers the outer surface of the testicle as well as the epididymis, and a parietal portion, the tunica vaginalis reflexa. The inner surface of the tunica vaginalis is covered by a single epithelial layer of flattened cells. The pouch is obliterated. The inner surface of the tunica vaginalis is covered by the tunica albuginea. It is the fibrous covering of the testicle. It sur-

rounds the glandular structure of the testicle, and at its posterior border is reflected into the interior of the gland, forming the so-called corpus Highmori. From this corpus numerous slender fibrous cords, sæptula testis, are given off, which radiate toward the surface of the organ and are attached to the inner surface of the tunica albuginea. The sæptula testis divide the interior of the organ into a number of cone-shaped spaces. The inner surface of the tunica albuginea and the different sæptula are covered by the tunica vasculosa. It is the vascular layer of the testis, consisting of a plexus of blood-vessels held together by a delicate areolar tissue. The corpus Highmori contains the rete testis, from which fifteen or more vasa efferentia go forth and form in windings the coni vasculosi, or the head of the epididymis. The vasa efferentia coalesce to form the vas epididymidis, or the body and tail of the epididymis. The continuation of the vas epididymidis is called vas deferens, which, accompanying the spermatic duct into the abdominal cavity, opens into the vesicæ seminales.

Having been made acquainted with the anatomy of the testes and the spermatic cord, we shall easily understand why the spermatic veins are liable to be dilated. The dilatation of a vein may be caused either by a higher blood pressure, or by the diminished resistance of the vessel's wall. The blood pressure augments either by the increase of the resistances in the outflow of the blood, or by the decrease of the resistances in the blood supply. Now, the spermatic artery comes directly from the aorta abdominalis, where the highest blood pressure prevails. Hence, the pressure in the spermatic arteries is also high. The pressure in a vein is derived from the residual blood pressure of the corresponding artery. The spermatic veins are therefore supplied with an abundant amount of blood. This blood meets, in flowing off, with many resistances. From its entrance into the abdomen until its opening into the main veins the walls of the veins are subjected to the intra-abdominal pressure. Besides this, the left spermatic vein passes behind the flexura sigmoidea of the colon, which is often filled with fæcal masses pressing on the vein. Furthermore, the spermatic cords hang vertically and the spermatic veins are very long. They are therefore under a high hydrostatic pressure. The left vein opens at a right angle into the renal vein, which also causes high pressure.

This long list of anatomical causes for varicocele is given by most authorities, but they all end by expressing dissatisfaction. Indeed, it would be, as Holmes * says, contrary to all the teachings of teleology that an anatomical arrangement such as this should produce and cause disease. Spencer, † therefore, rejects all the anatomical causes, acknowledging only the hereditary condition. The spermatic plexus in the adult represents the veins of the Wolffian body in the embryo. Now, says Spencer, if we suppose that, instead of the complete involution during early life, some of the large veins of the plexus remain still patent but collapsed—in a potential state, so to say—then toward puberty the natural conditions due to the increasing vascu-

* Gray's *Anatomy*. † *Intern. Med. Magazine*, Philadelphia, 1893.

† *Anat. des Menschen*.

* *Omaha Clinic*, 1893.

* Holmes's *System*, vol. iii, p. 567.

† *St. Barth. Hospital Report*, 1887.

larity and the increasing length of the spermatic vein, with its contained column of blood, may tend to dilate these collapsed but still patent veins. But the question remains just the same, How can a condition which exists in all be the cause of disease in some? I agree with Lydston* that sometimes varicocele may be due to a constitutional lack of tone, and with Carlier,† who saw three brothers unfit for military duty on account of varicocele, that inherent lack of muscular and vascular tonicity is sometimes the cause of varicocele. This inherent disposition may be the cause why Spencer‡ found varicocele also in childhood. But, when we consider that Landouzy found varicocele in sixty per cent. of male adults, we have to look for a particular pathological cause for this disease. I can by no means agree with Bennett* that the origin of varicocele is always congenital. I think that the anatomical relation, as well as constipation and inheritance, are only factors which will greatly help to exaggerate the pathological condition. The purpose of this paper will therefore be to show what, according to my opinion, is almost always the pathological cause for varicocele.

In October, 1893, a man, thirty-seven years of age, called upon me with the complaint of a decrease of sexual vigor. In the anamnesis he confessed to having practiced masturbation from his early boyhood until he got married. He is the father of a child four years of age. For two years he has been a widower. He made the impression on me that he was still an onanist. On examination I found a varicocele of the left spermatic vein. There was no other cause for the varicocele but the masturbation. I therefore decided to examine, from this time, every case of varicocele in regard to masturbation.

Soon after this I had the opportunity to see another patient, thirty-three years of age, with varicocele on both sides. The history of this case reads as follows:

As a boy twelve years of age the patient was taught by another boy the practice of onanism, which he continued practicing—sometimes daily or even twice a day; sometimes, feeling that the habit was vicious, only once a week or once a month—until this day. From his sixteenth year ejaculation began to take place during his manipulations, sometimes even *pene non stante*. When he was twenty years of age he began to associate with public women, gradually diminishing onanism. During the same time he began suffering from a dragging sensation in the testicles, which were slightly enlarged. The scrotum seemed to get filled with a softish swelling, causing the patient some pain. The spells lasted twenty to thirty minutes, returning every three to ten days. Noticing that by supporting the scrotum the pains diminished, he bought a suspensory bandage which he used for several years. For the last six years the patient had found that the spells returned only after venereal excitement without gratification. The touch of a woman's hand may produce them. He has now greater pain. They begin with a pressing sensation around the anus such as to cause the patient to go to the water-closet. Later on these pains extend to the lumbar and abdominal regions, around the bladder, and along the spermatic cord to the testicles, which seem to be surrounded by a soft, mushy

tumor. The scrotum resembles a bunch of earthworms in a sac. In assuming a horizontal position the painful sense of dragging and weight along the cord and in the scrotum diminish, but not the pains in the lumbar and abdominal regions. The spells last on an average one to two hours. For a year the patient has noticed an immediate relief of the congestion by causing an ejaculation. The examination showed varicocele on both sides.

In this case also I could not find any other cause for the varicocele but the long practice of masturbation. The patient was never troubled with constipation, he suffered rather from diarrhœa.

The third case of varicocele, which I had the opportunity to see soon after, resembles in many respects the second. Mr. L., twenty-four years of age, has been suffering for two years from a dragging, painful sensation in his scrotum after the slightest effort. He began practicing masturbation when a boy of eleven years of age. The first coitus took place in his fifteenth year. He feels relieved of the painful sensation of dragging and weight along the cord after a sexual intercourse. On examination I found varicocele on both sides.

That in all the three cases masturbation was the only cause for varicocele was apparent for every one who saw them. I can not agree with Duplay,* who could not find any other cause for varicocele in a man twenty-two years of age but the opening of the left spermatic vein into the renal vein at a right angle. I think if he had interrogated his patient he would certainly have found masturbation as the cause. If Lydston† says that masturbation, sexual excess, and prolonged venereal excitement are undoubtedly responsible for varicocele in some instances, I think that masturbation is particularly responsible in almost every instance. Ranke‡ found that by irritation of the spermatic nerves the blood pressure in the veins becomes higher. Now I think there can scarcely be a greater unnatural irritation of the nerves than that caused by onanism. During such an irritation the testicles, being in a secretory condition, are supplied with a greater amount of blood, and anything that increases the amount of blood to the testicles is surely a cause for varicocele. Through the continual high pressure the walls of the veins become lax, flabby, and unresisting, and the vessels enormously dilated. The elastic and contractile tissue of the venous walls is absorbed and replaced by a low grade of connective or fibrous connective tissue.

The same condition as in the spermatic cord in the male is found in the broad ligaments in the female. By masturbation the amount of blood in all the sexual organs is increased and this causes varicocele in the broad ligaments, as the ovarian veins in the female are the analogue of the spermatic veins in the male. That varicocele is frequently found in women after pregnancies is agreed by most writers on this subject. Dudley* describes several cases of varicocele in women. Wiederhold|| declares the condition called "ovaric" to be varicocele in the female.

* *West. Med. Report*, 1891.

† *Arch. de méd. et pharm. milit.*, 1887.

‡ *Trans. Pathol. Soc. London*, 1889.

§ *Lancet*, 1889.

* *Gazette des hôpitaux*, 1893.

† *Times and Register*, 1889.

‡ Kocher, *Deutsche Chirurgie*, vol. 1.

* *New York Med. Jour.*, 1888.

|| *Deutsche med. Wochenschrift*, 1891.

Clapp* is sure that the condition of varicocele is often present in the female. But I can not remember having read about a case of varicocele in a virgin such as I once saw in a girl whom I immediately suspected of practicing masturbation. The sexual organs were all in a normal condition and yet she complained of a dragging sensation along the ligamentum Poupertii and in the vagina. The broad ligaments were thickened and, though I could not inquire about masturbation, I could judge from her entire appearance that she did it. By assuming masturbation as the chief cause for varicocele, we can understand how Landouzy could have found it in sixty per cent. of adult males.

I have thought it worthy to write about this subject, because there are few diseases that *per se* are capable of causing so much annoyance to the patient as varicocele is.

258 EAST SEVENTY-EIGHTH STREET.

THE TREATMENT OF EPILEPSY BY TENOTOMY OF THE EYE MUSCLES AND BY OTHER SURGICAL MEANS.

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"If I wished to show a student the difficulties of getting at truth from medical experience, I would give him the history of epilepsy to read." (1)

(Concluded from page 14.)

THAT the results—cure as well as relief—in a number of the cases operated upon by Dr. Ranney were the outcome of an operation seems plain, but whether *some other operation* would not have accomplished the same object is a question worthy of investigation in view of the fact that other surgical procedures, long since discarded (whose relation to the epileptic seizures was at least as obscure as that of ocular tenotomy in non-irritant heterophoria) have in the past wrought well-authenticated cures. Indeed, ever since medicine ceased to be pure empiricism, a large number of surgical proceedings have been suggested for the cure of epilepsy. These were usually based upon some theory which concerned the causation of the disease; they were more or less faithfully tried; they had their advocates and opponents, and all that now remains of them is a mass of literature, a few extracts (3) from which may be both instructive and entertaining.

Almost every one of these surgical remedies, it must be noticed, could claim its list of cures, and a fairly plausible working hypothesis to explain how these cures were brought about.

One of the most ancient of these, which has its advocates even to this day, is the *use of setons and issues*. Gowers (4) thinks they often do good, but their *modus operandi* is unknown unless one explains it by the use of that very indefinite term "counter-irritation." Many cases of cure by this means are, however, at hand. For example, Dr. T. H. Griffiths (5) furnishes several of these. He introduces

a large seton (fifteen or twenty strands of silk or flax thread) into the back of the neck and allows it to remain for months, removing it only when there is too much local irritation. Of the five cases so treated (tonics being the only other treatment) four were cured or greatly benefited. The disturbance of the mental faculties which is a common attendant in such cases rapidly improves after the insertion of the seton. The cure in the following case was undoubtedly due to the open wound and not to the electrical phenomena sought to be induced. The patient was under the care of Dr. Usher Parsons (6).

Michael H., aged twenty-five years, a stout man, never had an attack of epilepsy until two years before treatment. From that time the fits became more frequent, until he had them daily. They began with an aura—a creeping sensation along the left arm from the fingers to the shoulder. He was sometimes able to prevent attacks by pressing on the nerves of the arm with his right hand. Tried a great many remedies, surgical and medical, but in vain. Parsons applied an apparatus to patient's neck, which was designed to draw off "an excessive quantity of electric matter from the brain" through a blister in the back of the neck. A silver plate was placed over the latter, over that a wet sponge, and these were connected by a wire with a second blister on the knee. The raw surface on the knee was covered by a zinc plate also attached to a wet sponge. Both the sores and plates were dressed daily.

Not a single attack of epilepsy occurred for more than two years after the use of this ingenious mechanism.

Blisters and the Cautery.—The use of the actual cautery to the nape of the neck and spine is recommended by W. A. Hammond and A. McLane Hamilton, but Brown-Séguard holds that cures may also be brought about by circular blistering, or cauterization with a red-hot iron, of a limb, or even a toe or finger—just as a ligature about a limb may abort an epileptic attack preceded by an aura beginning in the limb aforesaid.

A case in which the patient was cured by the application of the cautery to the larynx is reported by H. Green (7). Another by Recamier (8) is as follows:

A tailor, aged thirty-two years, was admitted to the Hôtel Dieu (Paris) on account of epilepsy. Had a one-sided aura and numbness in his left foot. Was variously treated without effect, but finally blisters were applied not only on the affected foot but to those parts affected by the warning aura. He left the hospital, after having had several dozens of blisters applied, much better, and for three months, as long as he was kept under observation, he was quite free from the attacks.

Burns.—Whether it is the shock to the system, the counter-irritation produced by the suppurating surface, or a combination of both, it is difficult to say, but it is well known that cures of epilepsy have been brought about by burns. An instance of this is recorded by R. Beveridge (9).

An epileptic fell into the fire and received a deep burn of the face. Before the wound healed portions of the nasal, ethmoid, and frontal bones came away. After a tedious convalescence the fits did not return. Sproule (10), Bouygues (11), Reese, M. (12), Pearson (13), Langewicz (14), and many others have published similar cases.

Dr. Ranney had such a patient (Case XIV). No reference is made to the presence of eye symptoms. $V. = \frac{2}{1}^0$

* Omaha Clinic, 1893.

in each eye. Muscular equilibrium was (apparently) normal, but after some days of wearing a 5° esophoria prism he "manifested" 7° of esophoria. This patient's seizures came at irregular intervals, varying from two weeks to three months. The usual tenotomy was done and the esophoria reduced to 0.5°. After freedom from attacks for five weeks he had a "fit, during which he overturned a lamp which set fire to his clothing and burned him so that his life was despaired of. He (ten months after first consulting Dr. Ranney) states that he *passed over six months without any epileptic seizure.*" He now manifests 1° of esophoria, but notwithstanding this has had only one fit in over nine months.

To which agency does this young man owe his relief from epileptic attacks—the tenotomy of his external rectus or the nervous shock of the extensive burn?

Excision of Superficial Scars.—Cures brought about in this way are numerous enough. If the cases recorded in nineteenth-century literature were divided into two classes, the first class would include those in which to an unprejudiced mind there certainly was some definite connection between the cicatrix and the attack. Either the epileptic aura began by peculiar sensations in the scar itself, or it was a source of annoyance to the patient, justifying the idea that it contained imprisoned nerve fibers which were acting as a genuine peripheral irritant. In the second category might be placed those scars the existence of which the patient and his friends had forgotten until they had their attention directed to them by the surgeon. Notwithstanding the cures that have resulted from the removal of such scars, one has a right, in view of the mysterious way in which other surgical methods (to be described later on) have produced cures, to be skeptical about the causal relation assumed to exist between the scar and the epilepsy. One example (16) will suffice:

A boy, aged eight years, suffered from severe, frequent, and typical epileptic seizures. He had an aura which began by twitching of the muscles of the right side of the face. It then spread to the throat, and finally involved the whole body. On the right parietal bone there was a large, tender scar (the result of a fall), and it had been noticed by the parents that shortly after the wound healed the epileptic attacks began. The cicatrix was excised, the fits disappeared, and two years afterward he was mentally and physically healthy.

Burns and Amputations.—Unless it be the result of a shock to the cerebral centers or the outcome of a lasting mental impression, it is difficult to see how amputation of limbs that have no discoverable connection with the disease could cure epilepsy, and yet there are a number of recorded cases. Among the earliest of these are two by Aubanel (15).

B., aged forty years, a member of a family which never suffered from epilepsy, had, while serving in the Spanish war and without apparent cause, become an epileptic. Typical attacks came on every two or three weeks, and finally became so frequent that he was unable to attend to his duty. After several years of misery he fell into an open fire one day and was dreadfully burned—so badly, indeed, that he was obliged to have his left arm amputated near the shoulder. Since the day

of the operation he had but one slight fit. Had been free of them for a year, and at the date of the report had improved in all respects.

Mlle. Fleury, of healthy parents and aged fifty years, became at the time of her first menstruation, and without apparent cause, the subject of fits. At first they came on every five or six days, but at last they became so frequent that she had them very often and daily. The seizures were typically epileptic, and set in without aura. She remained in this wretched state until her fifteenth year, when she fell into the fire and badly burned her right hand. This accident had little or no effect upon the epileptic attacks. The wound never completely cicatrized, and there continued to be a watery discharge from it. She injured the hand again, the scar burst open, cellulitis set in, and the limb became so affected that an amputation was done. Previous to the operation her mental condition was pitiable; she was barely able to look after herself and could hardly speak. The operation seemed to change all this. The wound healed nicely, the fits did not return, and her general health as well as her intellectual powers gradually returned.

Amputations.—Many such cases are on record. Cures have followed amputation of the lower third of right forearm and hand (17), leg (18), left index finger (19), etc.

Phlebotomy.—Of course this remedy (?) was well tried in the days of our grandfathers. It was always easy to discover a "congestion of the head" in the "falling sickness." Yet, whether it was the bloodletting, the mental impression, counter-irritation, or what not, apparent cures of epilepsy did follow repeated venesections in the old days, when it was fashionable to bleed a man for almost every disease. Any one who is interested may find details of three cases so cured in an article by the French surgeon Colson (20).

Ligature of the Carotids.—This measure was at one time recognized as a legitimate and potent means of curing epilepsy.

It was undertaken with a view of lessening the blood-flow to the "irritable" nervous centers. Unjustifiable as we now believe it to be, it yet furnishes us with a fair array of cures, many of them performed in this country—*e. g.*, by Valentine Mott (21) and other well-known surgeons.

Under the care of the British surgeon Preston (23), a pensioner, aged twenty-five years, of a robust constitution, had suffered for five years from severe epileptic attacks, which recurred about every two weeks, often without any assignable cause. Preston thought that a cerebral congestion might lie at the bottom of the trouble, and on the 4th of February, 1831, one of the patient's common carotids was tied, after great loss of blood. The ligature fell off on the 5th of March, and two years after he had not had a single attack of epilepsy.

Two cases are reported by Dr. C. Angell (22), of Pittsburg, Ind. The first patient had fits for three or four years. These increased rapidly in severity and frequency until on the day before the operation he had fifteen or twenty fits in the forenoon alone. The right common carotid was ligated. The operation was successful and the patient never had another attack. Unfortunately, however, he died on the seventh day. Dr. Angell was more fortunate in his next attempt.

A man, aged forty years, had seizures for seven years. He had been under treatment by a great number of physicians, regular and irregular, without benefit. The attacks later on

recurred nearly every day, so that the patient had not been able to work for three years, and his mind was almost destroyed by the disease. Three months after the operation (from which he recovered perfectly) he had four fits only; commenced to attend to his long-neglected business, and felt better than he had done for three years. His family and all those acquainted with him agree that they can see a marked change in him.

Tracheotomy.—A fierce controversy raged over the utility of this proposed cure for epilepsy before it was generally abandoned. The celebrated Marshall Hall (24) originated the idea and wrote in its favor. It was extensively practiced both here and in England,* and in spite of its irrational character many cures and examples of relief are recorded. It was pointed out by Hall and others that many cases of epilepsy are of laryngeal origin (*epilepsia laryngea*), or at any rate the attack takes the form of laryngismus (or spasm of the glottis), producing embarrassment of breathing, congestion of the brain, and even danger to life from suffocation. Of course, it was obvious that in such cases, if a supply of air to the lungs could be insured, the chief source of the trouble would be removed. The tracheal tube was worn constantly, or at least until a cure had been effected.

Instances of cure are reported by Albers (25), Neill (26), and many others. In Albers's case the tube was worn for thirteen months, and the patient, a previously confirmed epileptic, never had a single seizure.

Goldhorn (27), after carefully considering the evidence adduced on both sides, makes the following comments, which one might with profit apply to other treatments in medicine and surgery: "Before this measure," says he, "can be considered as a permanent addition to the practical treatment of epilepsy, it must be shown, first, to be correct in theory; second, that it is not dangerous to life; and third, that the attacks do not return after the operation has been performed."

Ligature of the Vertebral Artery.—This surgical measure, largely employed here and in England, was in some sense the legitimate successor of the more dangerous ligature of the carotid. A too great supply of blood to the brain was in some cases supposed to be the cause of the attacks. This was to be remedied by occlusion of the vertebral artery. William Alexander, of Liverpool, was the best-known if not the first advocate of the measure, and accounts of his cases may be read in the *London Medical Times and Gazette* for 1881. Another account (28) gives a *résumé* of twenty-one patients so treated. They were workhouse people, and the symptoms were marked and severe. Three were quite well a year after the operation; nine others were so much improved and were so free from fits that they might be put down as cured, and eight were said to be so improved that if they got no better the operation would have been justified. In a paper (29) on the subject by Dr. J. Lucius Gray, of Chicago, an account is given of seven such operations performed in this city by E.

Andrews, Brower, Fenger, and others, most of which were followed by relief.

This operation has lately been performed by von Baracz (30) with apparent success, but, as none of the four patients had been under observation longer than four months, no conclusions can be drawn as to the permanency of the relief.

Hun (31), speaking of this article, says: "This is the old, old story of operative procedures undertaken in the wildest spirit of groping empiricism, to cure epilepsy without first becoming acquainted with the natural course of the disease."

Trephining.—This is a very old surgical treatment of epilepsy. I do not refer to those rational operations for the raising of depressed bone, the opening of cerebral abscesses, the removal of tumors, or for providing an exit for intracranial fluids, but rather to those cases where, underneath the button of bone, or in the bone itself, no pathological changes could be discovered. It is true that in most of such instances (where a cure was brought about) a history of traumatism was made out; but it seems to me that here there is a fallacy to guard against, because the great majority of people have, at some time or other in their lives, received injuries to the head (from falls and other causes) quite as severe as those ascribed to some of the patients operated on in the histories given, and yet epilepsy is a fairly uncommon disease. There were no pathological changes, so far as could be made out, in some of even M. G. Echeverra's (32) well-known list of traumatic cases treated by trephining. A case by Saxtorph (33) was certainly of this description, yet the patient was cured.

Dr. Mason Warren (34), of Boston, trephined in two cases of idiopathic epilepsy. He reports one case as cured and another as relieved. Also Burnett and Gould (35), one. Probably the case of Leo (36), mentioned by McLane Hamilton, is another, and so on.

"Counter-irritation" will again have to be evoked to explain some of these cures, and in some other instances the psychical influence of an "operation" is not to be lost sight of. The author just quoted says, very justly, I think, that operators say a good deal about the procedure itself, and recovery from it, to the exclusion of exact descriptions of the pathological conditions present. What one would like to know is how the surgeon justified his treatment—what relation, in other words, he supposed to exist in the cases before him between the trephining and the disease.

Dr. Spinelli gives the following history (37) of a boy, aged fifteen years, who had been epileptic almost since infancy. The attacks were infrequent—about five times a year. The doctor could think of no cause for the seizures, except that at his birth (the labor being prolonged and severe) he had received a contusion (!) on one of the parietal bones. A year before consulting Spinelli the boy received a blow from a stone which fractured the skull. It was decided to use the trephine at the junction of the parietal and occipital bones. An attempt was made to raise what looked like depressed bone, but in vain. The wound healed, and since then there has been no return of the disease. The author ascribes the cure to the enlarged space given by the operation to the growing brain.

* The reader will find full directions as to when and how to perform this—so far as epilepsy is concerned—now forgotten remedy in the *Lancet* for October, 1854.

When one remembers the reflex relations of the reproductive system, it is not to be wondered at that interference with the organs of that system has been common enough in the attempt to find a satisfactory surgical cure for epilepsy. When the attacks are plainly connected with diseased ovaries, testes, etc., the duty of the surgeon is plain enough; but, as in the cases about to be referred to, it is difficult to imagine how the removal of a *normal* organ can bring about a cure of the disease. Yet that such has been the case there is abundant evidence.

Circumcision.—Congenital phimosis has been noticed in eleven out of twenty-five consecutive cases (38) admitted into the London Infirmary for epilepsy and paralysis. Collections of sebum underneath the prepuce may lead to balanitis and herpes. The irritation thus set up causes in adolescents sexual excitement, masturbation, and reflex neuroses. W. Althaus thinks that if this does not actually cause epilepsy it may predispose to it, and if circumcision does not cure the disease it often relieves it and is a rational adjunct to other treatment. That some cures have followed circumcision I think has been proved. A good article on this subject is Sayre's (L. A.) *Circumcision versus Epilepsy* (39). Gowers (40) thinks it should be adopted in all cases where there is reason to associate the disease with masturbation.

Castration has been performed for substantially the same reasons that circumcision is urged, and although condemned by most text-books (41), it has its advocates and its list of cures. Rooker (42), Ogle (43), Bacon (44), are among the more modern defenders of the practice.

Batley's Operation.—The operation of "normal" ovariectomy has been performed extensively here and in England, but it is not generally known that one of its earliest advocates (45) argued that, if justifiable at all, its use should be restricted to the treatment of epilepsy. Batley reported among his earliest cases one in which the operation was performed for the cure of that disease. Among Lawson Tait's (46) cases of "spaying" were three done for "menstrual epilepsy." How the excision of normal or nearly normal ovaries can cure idiopathic epilepsy it is difficult to see, unless the mental impression made upon the patient is the cause of the cure.

Removal of the Clitoris.—It was for the advocacy and practice of this operation for the relief of functional nervous disease that Mr. Baker Brown (47) got himself into trouble twenty years ago. His idea was that many cases of epilepsy (for example) in females were the result of irritation (sometimes connected with, sometimes unconnected with, self-abuse) residing in the superficial pudendal nerves. To him the removal of the cause appeared to be the correct thing, and he began to excise the supposed offenders. However it may have produced its effects, there is evidence to prove that cases of recovery from epilepsy did occur after clitoridectomy. Reynolds (48) thinks that an operation of severity equal to that of the removal of the clitoris (or circumcision) might prove equally serviceable in some cases of epilepsy if performed on the back of the neck, the mouth, or the toes. He is of the opinion that it is mainly through the strong impression made upon the mind, or a

violent change in the body, that the operation mentioned, as well as tracheotomy, etc., produces its effects.

Nerve Stretching.—That some ill-defined alterations in the nervous elements, both peripheral and central, might be productive of remedial results, is the reason given for nerve stretching in epilepsy. There are few instances recorded where the offending (or suspected) nerve has been stretched with good results in idiopathic epilepsy. Professor von Nussbaum (49) publishes a case of cure.

A man suffering for many years from frequent attacks of epilepsy presented himself for treatment. He had double *pes equino-varus*. Both tibial and peroneal nerves were laid bare at the popliteal space for seven centimetres of their course and stretched with the forefinger. The fits ceased and for six months after the operation, while he was kept under observation, he has not had a single attack of epilepsy.

Spontaneous Cures.—It is natural and proper, when an operator succeeds in curing a case of epilepsy and the procedure is a new one, that he should put forward some hypothesis to account for the *modus operandi* of the surgical treatment which resulted so favorably. But the absence of relationship in our present state of knowledge between remedy and cure is in many cases so evident that the author wisely, it seems to me, either attempts no explanation at all or adds his history to the accumulated list of "spontaneous" cures. No room can be given here for discussing even the most interesting of these. References to many of them will be found in the *Index Catalogue of the Surgeon General's Library* under a special heading. A good example is, however, given by West (50) which I am tempted to copy in full. The author does not assume that the abscess mentioned had any connection with the interior of the skull.

A boy, aged ten years, suffered from occasional attacks of *petit mal* in February. In the following August the attacks became regular epileptic seizures, which increased in severity and frequency, and in the succeeding March returned several times a day and were accompanied by marked impairment of his mental powers and by an unsteady and tottering gait. After two months' trial of various remedies and the insertion of a seton in the back of his neck, he left the hospital worse than on his admission. On June 13th he fell in a fit and struck his occiput a violent blow. A large abscess formed here which burst of its own accord, continued to discharge for a few days, and then healed up. It is just two years since this happened, and from that time to the present there has been no return of fits; the boy has recovered his power of walking and has all the cheerfulness and intelligence that befit his years.

From the foregoing facts I conclude as follows:

1. Heterophoria in some form, latent or manifest, can be shown to exist as an ocular condition in fully ninety-five per cent. of all individuals.

2. Alone and when associated with ametropia it is not an uncommon cause of so-called asthenopia.

3. In the latter case the correction of the accompanying refractive error in the large majority of cases relieves all the symptoms set up, both by the ametropia and muscular anomaly; when it does not, the heterophoria may be said to be responsible for the asthenopia.

4. It is highly probable that when epilepsy is in trap or wholly the result of eye-strain other evidence of the latter is present.

5. It must follow from the foregoing that in the eye treatment of epilepsy of any decided degree the correction of the ametropia, and not the correction of the heterophoria, is the first and most urgent duty of the ophthalmologist, and that in cases where both are corrected at the same time it is fair to suppose that the results, if any, are due to the ametropic correction.

6. In cases of epilepsy with heterophoria and emmetropia, or where the correction of refractive errors has failed to relieve the asthenopic symptoms and the production of orthophoria is followed by cure of the epilepsy and the asthenopia, it is just to say that the operation on the eye muscles or treatment of them has produced the effect of stopping the convulsions.

7. In the absence of ocular symptoms, apart from the epilepsy, an operation upon the eye muscles stands in the same therapeutic relation to a cure or relief of the disease as do other surgical procedures that have during the past century been in vogue, such as tracheotomy, setons, ligation of the vertebral arteries, trephining, oophorectomy, circumcision, castration, the actual cautery, the resection of stray scars, and so on.

8. These operations bring about a cure or relief of the epilepsy (both idiopathic and hystero-epilepsy) by their powerful mental effect upon the patient—a truth long recognized by neurologists.

9. Genuine cures of epilepsy by eye treatment of any kind must necessarily be confined to those cases where a faulty ocular apparatus acts as a peripheral irritant. It remains yet to be shown that anomalies of the extrinsic muscular portion of that apparatus are to any large extent responsible for the seizures of epilepsy.

10. The eye treatment of epileptics who present signs of ocular distress has not received that attention which the importance of eye-strain in the category of reflex irritants seems to call for. The eyes should be carefully examined in every case of epilepsy where asthenopic symptoms are present or are suspected.

11. I question the wisdom of encouraging the profession and through them the laity to believe that every case of idiopathic epilepsy is a suitable one for eye treatment, but prefer to say that only those cases are fit subjects, in the proper scientific sense, for eye treatment whose visual organs are palpably the source of irritation, giving rise to symptoms generally included under the term eye-strain.

12. That when all remedies fail, some such operation as Reynolds suggests—easy to perform, perfectly safe, and yet of a severity and character tending to make a lasting impression on the patient's mind, is indicated. I would suggest the removal, at intervals, of small pieces of skin from various parts of the body, the denuded spots being allowed to heal by granulation.

1. Oliver Wendell Holmes. *Currents and Counter-currents in Medicine*, p. 25.

2. C. A. Oliver. *Philadelphia Med. Times*, 1887.

3. Casey A. Wood. *Western Med. Reporter*, July, 1890.

4. Gowers. *Epilepsy and Other Convulsive Diseases*, p. 235.

5. T. H. Griffiths. *Napheys's Med. Therapeutics*, p. 53.

6. Usher Parsons. *New England Med. Journal*, vol. xv, 1826, p. 355.

7. H. Green. *Medical Gazette*, iv, p. 98, 1853.

8. Recamier. *Bulletin de thérapie*, January, 1844.

9. R. Beveridge. *Medical Times and Gazette*, 1868, i, 390.

10. Sproule. *London Medical Times*, 1844, 152.

11. Bouygués. *Journal de médecine et chir. de Toulouse*, 1852, 44.

12. M. Reese. *Med. and Surgical Reporter*, 1869, 239.

13. Pearson. *Ibid.*, 1869, 145.

14. Langewicz. *Gazette médicale de Paris*, 43, 1839.

15. Aubanel. *Oesterr. medicin. Wochenschrift*, Wien, 1846.

16. Klaatsh. *Wiener med. Wochenschrift*, i and ii, 1857.

17. W. Atlee. *Philadelphia Medical Times*, 1870, p. 224.

18. Cazenave. *Gazette des hôpitaux*, Paris, xxiv, p. 95, 1851.

19. Lallemand. *Annales cliniques de Montpellier*, ii, 284, 1854.

20. Colson. *Bulletin de la Société de médecine de Gand*, i, 19.

21. Valentine Mott. *New York Med. Gazette*, 120, 1850. See also a full report of cases in the *New York Journal of Medicine*, 1852; also 1857.

22. C. Angell. *Northwestern Med. and Surg. Journal*, October, 1857.

23. Schmidt's *Jahrbücher der ges. Med.*, Bd. xx, S. 167.

24. Marshall Hall. *Lancet*, May 10 and 17, 1852.

25. Albers. *Archiv für phys. Heilkunde*, 1852.

26. Neill. *Boston Med. and Surg. Journal*, 1852-53, vol. xlvii, p. 29.

27. Goldhorn. A critical review of the subject contributed to Schmidt's *Jahrbüch.*, Bd. lxxxv, p. 173.

28. William Alexander in *Brain* for July, 1882.

29. J. Lucius Gray. *Neurological Review*, July, 1886.

30. Von Baracz. *Wiener med. Wochenschrift*, February, 1889.

31. *Annual of the Univ. Med. Sciences*, vol. ii, 1890.

32. M. G. Echeverria. *Les archives générales de médecine*, December, 1878.

33. Saxtorph. *Journal de médecine et de chir. pratiques*, Paris, 1882, 163.

34. Mason Warren. *Surgical Observations with Cases*, 1867.

35. Burnett and Gould. *British Medical Journal*, 1888.

36. Leo. *Pepper's System of Medicine*, vol. v, 502.

37. Spinelli. Translated into German by Urban from the Genoese journal, *Il Filiatra Sebezio*, for April, 1845.

38. *Lancet*, February 16, 1867. Nothing is said about the proportion of congenital phimosis in healthy people.

39. L. A. Sayre. *Medical Record* (New York), 1870, p. 233.

40. Gowers. *Loc. cit.*, p. 236.

41. See, for example, Bristowe's *Practice of Medicine*, p. 1004; Roberts's *Practice*, p. 933, etc.

42. Various numbers of *Cincinnati Lancet and Observer* for 1861, 1862, and 1868.

43. Ogle. *Lancet*, 1859, i, 156.

44. Bacon. *Journal of Mental Science*, October, 1888.

45. Emmet.

46. Lawson Tait. *Manual of Gynecology*, Hart and Barbour, ii, 203.

47. Baker Brown. See his small book, *Insanity, Epilepsy, and Hysteria in Females*.

48. Reynolds. *Practice of Medicine*, vol. i, 782.

49. Von Nussbaum. *Die chirurg. Klinik zu München im Jahre 1875*.

50. West. *Diseases of Children*, American ed., p. 181.

THE
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FRANK P. FOSTER, M. D.

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THE LIMITATIONS OF SYMPHYSIOTOMY.

In the *Journal des praticiens* for June 27th there is a letter from Brussels, dated June 25th, in which the writer gives a summary of certain arguments raised by M. Fraipont at a recent meeting of the *Société médico-chirurgicale*, of Liège, against the indiscriminate use of the operation of pubic symphysiotomy. M. Fraipont dissents from Caruso's dictum that if death follows this operation it is the surgeon's fault and not that of the operation. He appeals to the most recent statistics in proof of his contention. It appears from a communication made to the society in question that, out of thirty-three symphysiotomies performed in France in 1892, six were followed by death; in other words, the mortality was 18.1 per cent. Frommel has collected a series of seventy-eight symphysiotomies done in Germany in 1893, and the death-rate among the mothers was 11.5 per cent. and among the children 28.2 per cent. Whatever may be the future of this operation, says M. Fraipont, we must, in view of these facts, admit that it involves some dangers, among which are those of hæmorrhage, septicæmia, and surgical shock. On comparing the statistics of symphysiotomy with those of the Cæsarean operation, he finds in a series of thirty-five cases of the latter a maternal mortality of 2.8 per cent., together with an infant mortality lower than that of symphysiotomy. Moreover, the operation of symphysiotomy is sometimes beset with difficulties, such as deviation and ossification of the symphysis, and by such accidents following the operation as hæmorrhage behind the pubes or proceeding from the clitoris and laceration of the bladder or of the vagina, with an ultimate formation of fistulæ affecting the urethra or the bladder and the vagina.

M. Fraipont went on to ask concerning the ultimate condition of those who have been subjected to this operation, and cited Mullenheim as having observed three women on whom it had been performed by Freund, of Strassburg, in whom union had failed to take place and the pubic bones were separated and movable. In one of these women there was relaxation of the sacro-iliac articulation. All three of them had prolapse of the vagina, incontinence of urine, and inability to perform their ordinary work. In consequence of all this, M. Fraipont thinks that the indications for symphysiotomy must be limited. In the case of a pelvis measuring from seven to eight centimetres, he says, one would hesitate between this operation and the Cæsarean section; in case of a greater diameter than eight centimetres, if the forceps failed, symphysiotomy would be the operation to adopt.

The correspondent remarks that M. Fraipont's view is far from being that of all Belgian obstetricians, and refers to M.

Lambinon, who founds a favorable opinion of symphysiotomy on Varnier's statistics of a hundred and twenty-four operations with a maternal mortality of only twelve, but, nevertheless, expresses himself with reserve and opposes the abandonment of artificial premature labor, which has been proposed in all cases where symphysiotomy would enable the head of a full-grown foetus to pass. Finally, says the correspondent, the truth seems to be that the field for the Cæsarean operation begins where that for symphysiotomy ends; but doubtless the Sigaultean operation will give better results when the clinical and operative details pertaining to it have been more thoroughly studied. This moderate view finds the greatest number of supporters among the Belgian physicians.

THE TREATMENT OF INFANTILE CONVULSIONS.

In a recent number of the *Gazette des hôpitaux* M. Jules Simon presents a very carefully written paper on the treatment of convulsions in infants. He agrees with most observers that the causes of this disorder in the great majority of cases is some digestive disturbance. He first directs his attention, therefore, to the alimentary canal. This is to be cleared of its contents as rapidly as possible. A warm enema of oil or glycerin is given at once. In our own experience glycerin has proved the most efficient means of evacuating the bowels quickly. One or two teaspoonfuls should be injected, without the addition of water, and should be retained by compression as long as possible. If there is the least reason to suppose that the stomach contains undigested food, it should be evacuated by an emetic. To check the convulsions before the enema has acted, the author advises the use of chloroform. We have known a fatal termination to be attributed by the friends to the use of this remedy. It must be given with extreme caution and should be dispensed with until other measures have failed. In convulsions due to irritating substances in the stomach and bowels nitrite of amyl may be resorted to, but is not so efficacious as in epileptic convulsions. After the bowels have been made to act, or when they have failed to act after one or two attempts have been made to affect them, the most efficacious treatment, M. Simon believes, consists in the rectal administration of chloral and musk. The use of chloral in this condition has come into very general use in this country. It acts efficiently and promptly, and is well tolerated by children. The author's dose, however, it seems to us, is rather large, although it may be given in proportionately large doses to children. He advises eight grains for a child six months old and fifteen grains for one a year old. In addition to this, he administers small doses of bromide of potassium every hour. This drug unquestionably has a beneficial effect, not so much in the immediate relief of the convulsions as in preventing their recurrence. We prefer bromide of sodium for children. The most reliable means of preventing recurrence in ordinary cases is complete evacuation of the alimentary canal. If undigested or irritating matter is allowed to remain, convulsions are very prone to recur.

Cutaneous revulsives, such as hot baths, mustard baths, and

blisters to the back of the neck, are advised by the author only in very obstinate cases. Search should be made at once by the physician for the cause of the convulsions. If indigestion, constipation, and inflammatory disease of the bowels are absent, cutaneous irritation or reflex irritation from hernia, phimosis, or foreign bodies in the ear or nose should be sought for, the possibility of uræmia or disease of the brain being always kept in mind.

MINOR PARAGRAPHS.

HOSPITAL REPORTS.

It is very much to the discredit of most American hospitals that their annual reports are little more than lists of officers and benefactors, barren statistical tables, acknowledgments of donations, and directions for the guidance of wealthy persons as to testamentary benefaction. It has been gratifying to note within the last few years, however, instances in which several of the more considerable hospitals have shown a tendency to rise above such matters and print more or less of the recorded work actually done. Notable among recent examples are the *Sixth Annual Report of the Methodist Episcopal Hospital*, of Brooklyn, and the first number, dated January, 1894, of the *Manhattan Eye and Ear Hospital Reports*. The first-mentioned of these is an octavo brochure of nearly two hundred pages, and, besides the matter usually to be found in such publications, it contains reports of the two surgical divisions, with a list of the operations performed, a report of the pædiatric service, a report of the medical division, a report of the pathological department, and a report of the ambulance work. The first issue of the *Manhattan Eye and Ear Hospital Reports* contains about a hundred and fifty pages, giving clinical histories of cases of disease of the eye and of the ear, also of diseases commonly coming under the care of the laryngologist or the rhinologist, an enumeration of the cases of the several affections treated in the neurological department, and a report of the work done in the pathological department (preceded by brief notes on malignant disease of the nose and on a method of determining the relative number of the bacilli in sputum preparations). Several of the articles are handsomely illustrated by reproductions from photographs. We shall look with interest for further reports of the sort from these two institutions, and we hope that the time is not distant when they and the few others that now show their appreciation of the importance of making the chief part of their work a matter of public record will be joined by those who have hitherto neglected this most obvious function of a hospital organization.

THE "C.-C." COUGH MIXTURE.

In a paper read by Mr. Joseph W. England at the recent meeting of the Pennsylvania Pharmaceutical Association and published in the July number of the *American Journal of Pharmacy*, entitled Notes on Practical Pharmacy, a mixture known under this name is said to be used very largely in the Philadelphia Hospital. Each dose, a fluid drachm, contains an eighth of a grain of codeine sulphate, two minims of diluted hydrocyanic acid, and fifteen minims each of chloroform and mucilage of acacia, the remainder consisting of syrup of wild cherry.

ITEMS, ETC.

The Appleton Prize, consisting of twenty-five dollars' worth of medical publications, offered annually by the firm of D. Appleton & Co. to the candidate passing the best examina-

tion before the board of medical examiners of the State of North Carolina, was won this year by Dr. Hubert A. Royster, of Raleigh, whose percentage was 98.93, which was the highest in the history of the board.

A Political Honor to a Physician.—An esteemed correspondent writes from San José, Costa Rica, to inform us that Dr. Juan J. Ulloa, who was a delegate from Costa Rica to the Pan-American Medical Congress, and who is a graduate of the Medical Department of the University of the City of New York, has been appointed Secretary of State in the Departments of the Interior and of Public Improvements of Costa Rica.

Changes of Address.—Dr. R. M. Howck, from Chicago to Moscow, Idaho; Dr. Louise G. Rabinovitch, to No. 849 Lexington Avenue; Dr. Allen M. Thomas, to No. 61 West Fifty-fourth Street.

The New York Polyclinic.—Dr. J. Riddle Goffe has been appointed professor of gynecology.

The Death of Dr. Solomon Van Etten, of Port Jervis, N. Y., occurred on Saturday, the 7th inst., as the result of apoplexy. The deceased was widely known and highly respected in the State of New York. He was sixty-five years old and a graduate of the Albany Medical College, of the class of 1855.

The Death of Dr. Conrad Lange, formerly of New York, is reported to have taken place in Berlin on Thursday, June 28th. The deceased, who was a native of Germany, was forty-two years old.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from July 1 to July 7, 1894:*

MCCREERY, GEORGE, Captain and Assistant Surgeon, will be relieved from duty at Fort D. A. Russell, Wyoming, by the commanding officer of that post, and will report for duty at Fort Washakie, Wyoming.

MERIWETHER, FRANK T., First Lieutenant and Assistant Surgeon, will be relieved from duty at Fort Logan, Colorado, by the commanding officer of that post, and will report for duty at San Diego Barracks, California.

DE LOFFRE, AUGUSTUS A., Major and Surgeon, Fort Logan, Colorado, is granted three months' leave of absence, with permission to go beyond sea.

Society Meetings for the Coming Week:

TUESDAY, July 17th: Medical Society of the County of Otsego (annual—Cooperstown), N. Y.

Letters to the Editor.

ANOTHER CASE OF GONORRHOEA WITHOUT COITUS.

WATERTOWN, WIS., June 21, 1894.

To the Editor of the *New York Medical Journal*:

SIR: Having read the letters published in the *Journal* of April 7th and June 2d, respectively, by Dr. Bush and Dr. Smith, on venereal diseases without coitus in children, I take the liberty to report the following case, which occurred in my own practice two years ago:

My patient was a married man suffering from gonorrhœa contracted in a house of ill fame. I had treated him for about two weeks, when he informed me that his six-year-old daughter had the same discharge from her genitals. I found in her a

well-developed case of gonorrhœa, characterized by a purulent discharge, hyperæmia and swelling of the external genitals, and frequent desire to urinate. The disease was very stubborn, but finally yielded to antiseptic irrigation of the parts, ending in apparent complete recovery. I had warned the father of the danger of communicating the disease to his wife, and he had abstained from coitus until all symptoms of the trouble had disappeared. Calling his attention to the importance of keeping the infection out of his eyes, and cautioning him to be very careful with his towels, it never occurred to me to warn him especially in regard to the possibility of infecting his children. Upon a scrutinizing examination of father and child I obtained the following history: About three days previous to the first symptoms in the little girl she had been given a bath in a bath tub used the same day by the father. I could not ascertain whether the same towel or sponge had been used by both patients, but suppose such was the case.

Though no microscopic examination for gonococci was made, I am certain the disease in the girl was true gonorrhœa, as her mother had kept her very clean, giving her a bath twice a week, and the disease was very reluctant to yield to the most assiduous treatment. I report this case, not very interesting in itself, for the purpose of calling attention to the frequency with which that dreadful disease, gonorrhœa, can be communicated to the innocent, especially little girls. The long prepuce protects the urethra of little boys, and makes infection more difficult, while the mucous membrane of the vagina and urethra in girls is without such protection.

Knowing the fearful results of gonorrhœal infection in women, first pointed out by Noeggerath, and now generally understood by the profession, it becomes the sacred duty of every physician to guard against it wherever it can be done. Above all, the innocent must be protected and saved from a life of suffering and misery. Not to warn a patient with gonorrhœa of the possibility and danger of communicating his disease by means of contact with infected clothing, bedding, towels, sponges, etc., to innocent members of his family, amounts, in the light of modern science and experience, to nothing less than criminal negligence.

CARL R. FELD, M. D.

A CASE OF MULTIPLE PREGNANCY, WITH TWENTY-FOUR HOURS BETWEEN THE BIRTH OF FIRST AND SECOND CHILD.

BELLEVILLE, ILL., June 19, 1894.

To the Editor of the *New York Medical Journal*:

SIR: In No. 801, June 9th, of the *Journal*, I find a report by Dr. J. L. Callahan of a case of multiple pregnancy with forty-six hours* between the birth of the first and that of the second child. I will relate a similar case, not for the purpose of throwing any new light on the subject, but because I think it is well to record such cases for statistical purposes.

On June 22, 1891, Mr. G. called at my office and informed me as follows: His wife had given birth to a child the day previous. The attendant in the case had told them that there would be born another baby, that he would probably need my assistance, and I should hold myself in readiness. I informed the gentleman that under such circumstances I would visit his wife at once. I knew the lady, a multipara. I had attended her on former occasions. She is a tall, well-built person. I found her in good condition, having a good pulse and no untoward symptom of any kind. The attendant told me that she had not had a pain since the day previous. Digital examination

revealed the umbilical cord in the vagina, the os dilatable, a transverse position of the fœtus, no arm presenting. I made my hand and arm thoroughly aseptic and delivered by version without any difficulty. The delivery of the placenta was normal. The patient made a good recovery, together with her two babies. I had never before come across a similar case. I have never waited longer than six hours between the delivery of the first and that of the second baby. I think when the physiological conditions cease, artificial means should be instituted.

J. KOHL, M. D.

A RAWHIDE PROBE FOR THE EUSTACHIAN TUBE.

46 EAST TWENTY-FIFTH STREET, NEW YORK, July 6, 1894.

To the Editor of the *New York Medical Journal*:

SIR: The *Journal* of June 16th prints a letter which contains a just criticism of the celluloid probe for the Eustachian tube.

Last winter the writer showed a Eustachian probe made from rawhide by Tiemann & Co., of New York, at a meeting of the New York Otological Society. These probes are flexible, and possess sufficient elasticity to allow of easy introduction. They never break, and, on account of the organic material used in their construction, they can be employed as a vehicle for different solutions suitable for the Eustachian tube, which they absorb to a limited degree when immersed for a short time. They also offer a good means for the introduction of ointments, which adhere to them better than to a celluloid or whalebone probe.

J. W. GLEITSMANN, M. D.

HYSTERICAL APOPLEXY.

WESTON, MO., June 26, 1894.

To the Editor of the *New York Medical Journal*:

SIR: In your issue of June 23d is a summary of an article on Hysterical Apoplexy, by M. Comby, from the *Mercure médical* for May 30th. I wish to report a similar case. In April, 1893, I was called to see my mother, sixty years of age, who had been hysterical all her life. I found her with complete left hemiplegia, both motor and sensory. She recovered from this in about two weeks, and enjoyed very fair health until January of this year, when the second attack came on. This time the apoplexy produced complete paralysis, unconsciousness, and death on the third day after the attack.

WILLIAM WABINER, M. D.

* * The rapid recovery from the first attack hardly seems sufficient to characterize it as hysterical.

Proceedings of Societies.

AMERICAN SURGICAL ASSOCIATION.

Annual Meeting, held in Washington on Tuesday, Wednesday, Thursday, and Friday, May 29, 30, and 31, and June 1, 1894.

The President, Dr. J. EWING MEARS, of Philadelphia, in the Chair.

(Continued from page 24.)

Amputation of the Entire Upper Extremity (including the Scapula and Clavicle) and of the Arm at the Shoulder Joint, with Special Reference to Methods of Controlling Hemorrhage; with the Report of One Case of the Former Amputation and Four of the Latter.—Under this title Dr.

* Dr. Callahan has informed us since his article was published that the interval in his case was really seventy hours.—EDITOR.

W. W. KEEN, of Philadelphia, presented a paper in which were considered first those amputations which allowed of simple disarticulations at the shoulder joint itself; those in which the axilla was invaded, yet only to such an extent as to allow of its being thoroughly cleaned out, followed by amputation at the shoulder; and those in which removal of the entire upper extremity, including the scapula and clavicle, was required. In simple amputation at the shoulder joint the control of hæmorrhage was the key to the situation. The methods for the prevention of hæmorrhage were: First, those applicable to the subclavian vessels; secondly, those applicable to the axillary. Most text-books recommended compression of the subclavian by the thumb or a well-padded key. Dr. Allis had modified this method by substituting a stick eighteen inches in length with a pad of sterilized gauze at its extremity. This obviated the danger of slipping and could be applied without fatigue on the part of the operator. The author had suggested compression by means of a solid pad held in position by an Esmarch bandage, but on trial in the case of a child this had proved unsatisfactory. A third plan consisted in ligation of the subclavian artery. This was objectionable on account of the prolongation of the operation, also on account of the necessity of resecting the clavicle in order to ligate the vein, for if the vein was not ligated there was danger of the entrance of air.

Axillary Methods.—1. Those in use prior to the introduction of Esmarch's tubing. 2. Different methods of using Esmarch's tubing. Under the first head there were: *a.* Compression of the inferior flap by the fingers, which seized the vessels before they were cut. *b.* Harvey's method by compression of the vessels by means of a padded ruler thrust into the axilla. *c.* Ligation or seizure of the vessels with hæmostatic forceps before they were cut. *d.* Gross's compressor; but practically this was never used. *e.* Furneaux Jordan's method by making a surgical amputation at the surgical neck, securing the vessels as in a hip-joint amputation, the blood-vessels having been compressed by an Esmarch band or other means followed by disarticulation of the upper end of the humerus.

Under the second head: *a.* After making the antero-external flap, a stout pin was passed through the postero-internal flap between the vessels and the bone, and elastic tubing wound over the ends of the pin. In this method there was danger of the vessels retracting above the constricting band. *b.* Esmarch's method, in which an elastic tube was placed in the axilla and drawn tight over the shoulder, where it was grasped by the hand of an assistant. This was open to the danger of slipping of the bandage after disarticulation of the bone. *c.* Morré's method, in which the tubing was applied as in the Esmarch method, but was held in place by a bandage passing around the chest and under the tubing in front and behind. *d.* Wyeth's method by pins and elastic tubing. In this method the operation is performed as follows. The arm was held at a right angle to the body. The sharp-pointed cylindrical pins, eleven inches long and a quarter of an inch in diameter, were used. The anterior pin was introduced through the middle of the anterior axillary fold at a point a little nearer the body than what might be called the center of the fold transversely. The point of emergence was of much greater importance than the point of insertion; this should be an inch within the tip of the acromion. The second pin was introduced at a corresponding point through the posterior axillary fold, emerging an inch within the tip of the acromion. The point of emergence was of importance, for if the pin emerged near or at the tip of the acromion, the moment the head of the humerus was removed the tubing was apt to slip downward and compress the two flaps against each other, thus hiding the cavity and permitting the vessels to retract. The pins being in position, a piece of

rubber tubing was wound round the axilla and shoulder on the hither side of the pins. The disarticulation having been effected, the main vessels and all visible vessels were tied and the tubing was removed, the vessels spurting being grasped with hæmostatic forceps. The author considered this the most satisfactory method of controlling hæmorrhage, and he felt confident that any one who adopted it would abandon all other methods in its favor, except possibly in emergency cases.

As to amputation at the shoulder joint in cases in which the axilla was invaded so high that Wyeth's pins could not be used, in 1812 Delpech had proposed to make an oblique incision extending from the external third of the clavicle to an inch above the inferior border of the great pectoral muscle. We thus discovered the lesser pectoral and could cut near to its origin on the coracoid process of the scapula. The index finger was then carried through the cellular tissue along the serratus magnus, then the subscapular, and was used as a hook in order to draw the mass of vessels and nerves outward. The artery was found in the anterior portion of this mass. The artery and vein were then ligated. The advantages of this method were that it gave wide access to the axilla, and that we could determine with ease how far and how great was the invasion of the axilla, so that, if thought advisable, the operation could be abandoned at this point, or, if it was decided to proceed with the operation, the incision already made served as the inner part of the deltoid incision. The author had employed this method with great satisfaction in a case where a sarcoma of great size had invaded the axilla nearly to the clavicle.

As for cases in which it was necessary to remove the arm, the scapula, and the clavicle, the methods which had been employed to control hæmorrhage had been: 1. Simple compression of the subclavian artery. 2. Compression of the artery after resection of the clavicle. 3. Ligation of the subclavian prior to beginning the amputation. 4. Resection of the middle half of the clavicle and ligation of the subclavian. 5. Wyeth's procedure of first tying the artery, then forming the flaps, and, when the arm, clavicle, and scapula were only connected with the trunk by the veins and nerves, securing the veins and cutting the nerves. 6. Ligation of the artery and vein after resection of the middle portion of the clavicle. This seems to be by far the preferable method. The advantages of this method were that it prevented hæmorrhage from division of the axillary and its branches, it diminished the amount of blood lost during the operation, it prevented the entrance of air into the veins, it permitted of a large opening of space between the upper extremity and the chest, and it enabled us to divide the posterior attachments of the upper extremity, where the arterial circulation was still going on, at the end of the operation.

As a rule, recovery from this operation followed in from two to three weeks. The mortality in the more recent operations had been extremely low—one in fourteen. Again, by this method we could often amputate wide of the disease, in consequence of the relative smallness of the flaps required. In view of these facts, the author urged that in all cases of malignant disease of the upper end of the humerus, or even of the lower end when it was already diffused, we should not content ourselves with mere amputation at the shoulder joint, but should at the same time extirpate the scapula and clavicle.

The author reported a case in which the arm, the scapula, and the clavicle had been removed for myeloid sarcoma occurring in a woman aged twenty years. The operation had been done on November 20, 1893. The patient had recovered and was still perfectly well.

Dr. ROSWELL PARK, of Buffalo, said that he had had two cases of total removal of the upper extremity, both of which

had been successful. One had been for railroad injury and the other for extensive epitheliomatous ulcer. In the first case the clavicle had already been broken and the subclavian vessels were secured at the point of fracture. In the second case the clavicle was divided and the vessels were tied.

Dr. CHARLES B. PORTER, of Boston, reported, as an illustration of the rapidity with which malignant disease might advance, the case of a patient with sarcoma of the radius in which the arm was amputated above the elbow. The disease soon recurred and amputation at the shoulder joint was done, and again the disease recurred so high up that no operation could be employed. The whole history of the case extended over only a year after the first operation. A case was also reported where the arm had been torn off in a railroad accident where the speaker had subsequently removed the scapula and the outer portion of the clavicle by an osteoplastic resection, and closed the wound by skin grafts. Three months later a hard plate of bone had formed very similar in shape to the scapula.

Dr. JOHN ASHHURST, JR., of Philadelphia, said that he had once used the Wyeth pins satisfactorily in an amputation at the shoulder joint. Another device to which he had resorted in several cases was to make the incision in the lower flap from without inward and secure the vessels in the wound.

Mooted Points as to Fractures of the Arm, with a Notice of an Improved Splint.—Dr. J. McFADDEN GASTON, of Atlanta, read a paper the purpose of which was to ask attention to practical considerations touching the treatment of fractures near the articulations of the arm. In cases of fracture complicated with dislocation, the author saw no advantage in first setting the fracture, but preferred to reduce the dislocation before treating the fracture, and efficient means should be taken to prevent the recurrence of the dislocation.

With regard to fractures at the wrist, the only one in which there was any notable diversity of opinion was Colles's fracture, which occurred from half an inch to an inch from the carpal articulating surface. In most cases the adjustment could be effected by extension upon the hand and pressure over the projecting lower fragment, but there was usually difficulty in maintaining apposition. The apparatus for Colles's fracture should control every movement of the wrist or of the fingers. This was effectually accomplished by the splint originally adopted by Nélaton. The dorsal and palmar Nélaton splints kept the fragments in their proper position, and with the extension effected by the pistol-handle shaped splint all the requirements were met. To leave the fingers exposed, that movements of them and of the carpal bones might accompany the treatment, was more likely to increase the local inflammation than if complete rest was maintained. Early movement of the fingers and of the carpal joint must increase the tendency to subsequent stiffness. After considerable experience with the double pistol-handle-shaped splint in the treatment of Colles's fracture, the author had never seen a case in which there had remained any permanent impairment of the use of the fingers or the wrist joint, or any material deformity had followed the treatment.

Dislocation of the head of the radius or the upper part of the ulna was frequently observed in connection with fractures of the lower extremity of the humerus. These required correction before the fracture was treated. A stiff arm in the extended position was practically useless, while in a flexed position it was of much service. While it was held that with proper precautions ankylosis should not occur, yet there were cases with such complications that ankylosis would ensue in spite of the best treatment. Where the surgeon could not reasonably expect to avoid ankylosis there was no question as to the necessity of treating the arm in an angular position. The practicability of maintaining the fragments in position when the frac-

ture involved the articulation was favored by the flexed rather than by the extended position. The rather fanciful allegation in favor of the extended position being favorable to the preservation of the outward angularity of the forearm upon the arm was not entitled to any special consideration, as there was nothing in the flexed position to interfere with the relation of the radius and ulna to the humerus. The comfort and convenience of dressing the arm in the flexed position also commended it. The author considered the use of a straight splint applicable only in fractures of the olecranon.

In the treatment of fractures near the elbow, the author applied a roller bandage from the fingers to above the seat of injury, and with the arm in a flexed position pasteboard splints were molded to its inner and outer surfaces. These splints extended from the wrist to the shoulder. An internal angular splint was applied to the outside of the dressing until the pasteboard had become thoroughly dry. This dressing had all the advantages of plaster of Paris, and could be removed daily if it was desired. The results of this method had been entirely satisfactory.

Fractures near the head of the humerus might be intracapsular or only implicate the tubercle outside of the capsule. The most frequent seat was through the surgical neck. It was for this class of cases that a special splint had been devised by the author, the object being to effect extension and counter-extension and keep the fragments in place and at rest. The splint was formed with a right angle in the plane of the board at the elbow. The arm was to be kept close to the body. A crutch-shaped branch was the special feature of this splint. Several cases were reported in which the splint had been used with success.

(To be continued.)

PHILADELPHIA ACADEMY OF SURGERY.

Meeting of May 7, 1894.

The President, Dr. J. EWING MEARS, in the Chair.

Personal Experience in the Treatment of Strangulated Hernia.—Dr. JOHN ASHHURST, JR., read a paper with this title in which he said that he had operated in nineteen cases of strangulated hernia, and in addition had operated on two cases of irreducible omental hernia, not strangulated. He had, of course, seen a large number of cases where he had succeeded in reducing the hernia by taxis. He had not kept a list of these, but the number was at least as large, if not larger, than the number of those operated on. While the number of his cases might seem small in comparison with that reported by others, this very fact confirmed the view which he had always entertained—that strangulated hernia was a rare affection in Philadelphia, and rarer in this country than in the countries of the Old World, England and Ireland particularly. Although the cases were few in number, yet, following the old maxim—"Observationes non numerandæ sed perpendendæ sunt"—it had seemed to him that it might be worth while to bring them before the Academy, so as to introduce the subject for discussion.

Of the nineteen operations for strangulated hernia, fourteen had been for inguinal hernia, confirming what every one knew—that inguinal was the most common form of strangulated hernia, and the one that most frequently called for operation. One of these cases had been in a child, operated on at one of his clinics and at once removed by the parents, and the further history of that case he did not know. Of the other thirteen patients, ten had recovered and three had died. The deaths had occurred in cases where a fatal termination might have been expected, and were not due to the operation. In one case the hernia had been strangulated for five days and the patient had

been a pronounced diabetic. He had died of gangrene after the operation, dependent upon the diathetic condition and upon the prolonged strangulation. The second death had occurred in a woman of seventy-eight years. The strangulation had been very tight, and the bowel had been gangrenous at the time of operation. Rupture had occurred at the sulcus corresponding to the line of constriction, and death had taken place from exhaustion in the following twenty-four hours. The third death had occurred in a man of intemperate habits, who had had a hernia strangulated for thirty hours, and who had been subjected to forcible taxis before admission to hospital. So forcible had been the taxis that it had resulted in rupture of the bowel in two places. At the operation the scrotum had been found enormously swollen and black from effused blood. Twelve inches of the bowel had been gangrenous, and the gut had presented two openings. Dr. Ashhurst had removed the bowel and had performed a circular enterorrhaphy, but the patient had died thirty-two hours afterward from cardiac failure, without evidences of peritonitis. It was evident that in none of these cases had the result been in any way due to the operation.

Four times the author had operated for strangulated femoral hernia, with three recoveries and one death. In the fatal case the patient had died in a collapsed condition thirty-six hours after the operation. He had no particulars of the case, but there had been no evidence of peritonitis.

He had had one case of strangulated umbilical hernia which had terminated fatally. The patient was eighty years of age, and the strangulation had existed for a number of hours. The patient had died of peritonitis, which, as everybody knew, was particularly apt to occur as a complication after umbilical hernia, incisions into the upper portion of the abdomen being more apt to be followed by peritonitis than incisions in the lower portion.

The youngest patient on whom he had operated was a child, two years of age, with inguinal hernia. This case had ended in recovery. The oldest patient was the woman eighty years old, with umbilical hernia, just referred to.

Among cases of special interest he mentioned one of the inguino-crural variety, where the hernia, after coming down through the inguinal canal, did not pass into the scrotum, but turned up in the line of Poupart's ligament and passed outward along the groin. It was usually complicated, as it had been in this case, with an undescended testicle. In this case the hernia had been down six days when he had operated. He had been able by taxis to reduce a portion of the tumor, but, finding that there still remained a hard mass which could not be reduced, he had thought it right to open the sac and determine the exact condition. He had found that the hard lump was the testicle in a gangrenous state, either from a twist in the cord or, as seemed more probable, from the taxis which had been practiced rather violently before the patient's admission to the hospital. He had excised the testicle and the patient had recovered.

He had operated in two cases of irreducible omental hernia. In these cases a tumor had been present in the tunica vaginalis for a long time, and, while there had been no symptoms of strangulation, the weight and bulk of the tumor had given great annoyance, and the patients had been exposed to the risk of a portion of the gut coming down at any time. He therefore had felt justified in operating in these cases, cutting away most of the omentum after securing its neck between two ligatures.

The points of special interest in the treatment of strangulated hernia which the speaker suggested for discussion were, as regarded the resort to taxis, its limitations and the aids to its performance, and then as regarded operative treatment, the particular mode of performing the operation, more especially as regarded the direction of the deep incision, in regard to which

some difference of opinion prevailed, and as to the advantages and disadvantages of Gay's method as modified by Fergusson, and as to the advantages or disadvantages of Petit's plan of operating without opening the sac.

Dr. Ashhurst said that, while he had reduced a good many strangulated hernias by taxis, while he believed that it should be the surgeon's first thought, and while, if practiced with care and skill, it was a safe method and one which would usually succeed when resorted to in time, yet he thought that, in the hands of an inexperienced practitioner, who saw but few cases of hernia, taxis was an unsafe procedure. Under such circumstances he thought that the patient would sometimes be safer with the operation of kelotomy than with taxis, for kelotomy was not a very difficult operation and not very dangerous if performed with caution, whereas taxis, while seeming to be very simple, yet, if employed with great persistence and force, might lead to the most serious consequences. His own cases of kelotomy which had resulted fatally had been mostly subjected to prolonged taxis. Taxis, therefore, he thought, had its limitations, and should be resorted to with great gentleness and with great caution, except in the hands of those surgeons who were sufficiently familiar with the anatomy and treatment of strangulated hernia to feel that they might use the method more freely and more systematically. It was, of course, known to the fellows of the Academy that its founder, the late Professor S. D. Gross, had maintained that very few cases of hernia required operation. He had prided himself that he had been able to effect reduction by taxis where others had failed; and such had undoubtedly been the case. In the hands of a man like Professor Gross, taxis was a safe procedure, but in the hands of the ordinary practitioner he believed that the line of safety for the patient would often be found in kelotomy rather than in a prolongation of taxis.

It was scarcely necessary to say that when taxis was employed it should be done with gentleness and with system. The ordinary method of pushing at the hernia was very uncertain, and was not only apt to do harm, but was almost sure not to do good. The rule that the last portion of bowel which had come down should be first returned was very valuable, and should always be borne in mind. Then he found, what he had been in the habit of speaking of to students as a kind of conjoined manipulation, a very useful mode of applying taxis, and he thought the safest. The neck of the sac is grasped by the thumb and fingers of one hand, while the other hand, spread out, exercises a combination of pushing and squeezing; and then by a kind of alternating movement, slightly relaxing one hand while with the other the pressure is increased, and if the hernia is reducible at all, it will go up. If no gurgling is heard in a few minutes, it is not likely that taxis will succeed.

As regarded the *aids to taxis*, the older surgeons had resorted to many modes of assisting taxis, but in modern times surgeons had pretty much come down to two or three. Even the warm bath, which had been much resorted to formerly, he thought was seldom employed at present. At the Pennsylvania Hospital the practice was to put the patient in bed, apply ice over the hernia, and give a moderate quantity of opium. When the resident physician was not able to reduce the hernia by gentle taxis, this course was followed until the surgeon had been summoned. It often happened that when the surgeon arrived he found that the hernia had been reduced spontaneously or disappeared under the slightest touch. If this failed, the rule was to administer ether and again employ taxis, and in this way the hernia could usually be reduced. Before administering ether there was an understanding with the patient that if taxis did not succeed, then the operation was to be resorted to.

Another manipulation which was of great importance was to draw down the hernia a little before beginning the upward pushing movement, the object being to disengage the portion of bowel which was nipped by the source of constriction. The plan known as Seutin's the author had never seen of avail, and he could hardly conceive of a case where it would be required in which it could be used successfully. This plan consisted in endeavoring to introduce the finger or thumb nail into the constricting ring, which was then stretched; this could be practiced only in very thin persons, and where it could be done he thought it probable that taxis would succeed without it.

With regard to *kelotomy*, the first question that would have to be decided was the extent of the external incision. Some operators made a large incision, extending over the entire length of the hernial tumor. Others endeavored to effect the operation through a very small incision, as in Gay's method. His own plan was to make the external incision three or four inches in length, and over the neck of the sac. As regarded the particular method of making the incision, whether by pinching up the tissues, transfixing, and cutting outward, or by cutting down from without, he really thought that there was no choice. He employed the latter plan. Having gone through the skin and fascia, the surgeon, of course, took up the tissues cautiously, dividing them on the director. The next question was whether or not the sac should be opened. The speaker accepted with the English rule, that where it was justifiable to resort to taxis it was proper to endeavor to reduce the hernia without opening the sac. He had often tried to do this, but had been compelled to open the sac, as the constriction had been in its neck. In making the deep incision the tip of the left forefinger should be pressed against the source of constriction and the hernia knife passed flatwise; this was then turned in the proper direction and the deep incision made with a gentle sawing motion, assisted by pressure of the finger below. He was satisfied that the rule of the English surgeons, to make the incision directly upward in inguinal hernia, was the correct one. While in a certain number of cases the surgeon could say this was a direct, or this was an oblique hernia, yet in other cases the relation of the parts was so confused that he could not be absolutely certain which form of hernia he was dealing with. In the one case the internal epigastric artery would be on the inside and in the other on the outside. The safe rule, therefore, was to make the incision directly upward and in the line of the long axis of the body. In femoral hernia the deep incision should be made upward and inward. It was only in this direction that we were safe from doing injury, and certain to reach the source of constriction, this being where the falciform process and Gimbernat's ligament join. The only danger from hæmorrhage when this plan was followed was from an abnormal distribution of the obturator artery. To avoid wounding this, a good plan was to adopt Mr. Erichsen's suggestion to blunt the edge of the hernia knife by rubbing it on the handle of another knife, or, as suggested by Dr. Wyeth, to keep the point of the knife firmly pressed against the pubes.

In umbilical hernia the safe line of incision was in the median line, and directly downward. The operation was apt to be followed by peritonitis under any circumstances; but he thought that there was less danger if the incision was made in this way, on the general principle that wounds in the lower portion of the peritonæum were less likely to be followed by peritonitis than those above. In the case on which he had operated the hernia had been of long standing, but the strangulation had been recent, from the protrusion of an additional portion of bowel. There he had followed the judicious rule of not attempting to reduce the whole hernia, which would have required an exten-

sive dissection, but simply had relieved the strangulation and returned the part recently protruded.

With regard to the method of dealing with the contents of the hernia, he thought that all surgeons agreed that if the bowel was healthy it should be returned, but that if gangrenous it should be left in the wound and a false anus formed. If a distinct sulcus was found he thought that it was a good rule not to reduce the bowel, so that if it should give way the extravasation might be outside of the peritoneal cavity. As regarded the omentum, he thought that it was a safe rule to cut it away pretty freely. If it was perfectly healthy it was proper to return it, but if there was a doubt it was safer to remove it.

With regard to after-treatment, he was sure that the safest mode was not to make any attempt to get the bowels opened. Some surgeons were in the habit of giving a dose of oil immediately after the operation, and some even before the operation; but this seemed to him to be injudicious. He had put the patient on the use of opium and belladonna for a few days, gradually diminishing the dose, and usually the bowels moved spontaneously in five or six days.

The number of cases which he had mentioned was limited, but they represented a sufficient variety to perhaps be available for the discussion of some of the points suggested.

Dr. JOHN B. DEEVER asked the experience of the fellows with reference to anastomosis. He believed that anastomosis operations were of value in but few cases of strangulated hernia. He had tried the method more by way of experiment, but the cases had not recovered. In order to do this operation it was necessary to pull down additional bowel. As Dr. Ashhurst suggested, where this sulcus had formed, it was better to allow the bowel to remain in the wound or, as he preferred, to cut it away. In hernia the condition of the patient did not warrant the procedure of anastomosis, and even under the most favorable circumstances the operation was anything but satisfactory.

He remembered a case of strangulated femoral hernia on which he had operated some years ago. The bowel had been completely separated, so that he could not find the proximal end through the opening made in exposing the hernia. It had been necessary to open the linea alba to find it. There had been extravasation of feces into the peritoneal cavity; here the speaker performed anastomosis, but it had not been successful.

He believed that all agreed that it was unwise to move the bowels immediately after the operation for strangulated hernia where the condition of the bowel was questionable and where increased peristalsis would favor rupture.

Dr. J. M. BARTON said that Dr. Ashhurst had had better fortune with taxis than he had had. One reason was perhaps that he had not spent much time with taxis. He had so often found the bowel in such a doubtful state, even after short strangulation, that he felt much safer, if there was any question as to its condition, to operate at once under antiseptic precautions. In one case the bowel had been entirely gangrenous eighteen hours after the violence that produced the strangulation.

As to the advisability of making lateral anastomosis immediately after removing gangrenous bowel, the condition of the patient rarely warranted any prolonged operation, and he thought that the rule now was, in intestinal obstruction, irrespective of cause, to do nothing further than to establish an artificial anus at the first operation. He had devised an instrument for use in these cases. It was a modification of Dupuytren's enterotome. It could be adjusted in a moment, and was intended to make an intestinal anastomosis, allowing the artificial anus to remain as a safety-valve. Since devising the instrument he had not had a suitable case in which to apply it.

Dr. O. H. ALLIS agreed to what had been said about the

use of forcible taxis. He remembered an instructive case in which Dr. Hearn had operated. The patient had been sent to the hospital after severe and prolonged taxis had been used. The constricted portion lay in the hernial canal, and he had been obliged to cut down on it at that point. It had been impossible to pass a grooved director between the constriction and the gut, so firmly had it been wedged. In two other cases he had seen the gut driven back and forced between the peritoneum and some of the layers of the sac, and in that way, while the physician felt that he had reduced it, he had only masked the trouble and made it more certainly fatal.

With regard to umbilical hernia he would state that he had had three cases and had never seen a patient die. He should be glad if the fellows would tell us their experience with umbilical hernia.

Dr. H. R. WHARTON thought that the most difficult point to decide in the treatment of strangulated hernia was the question whether or not to put the bowel back when it showed the marked effect of strangulation. In many cases where there was not absolute sloughing it was hard to decide whether or not a bowel whose nutrition was much impaired would recover. Within the past ten days he had had a case of femoral hernia where the color of the bowel had been very unfavorable. After dividing the stricture he had noticed some improvement in the color of the bowel, and he had put it back with some misgivings. The patient had progressed satisfactorily and without rise in temperature.

Another point that he had observed was that in cases where omentum was present in the hernial sac and prolonged taxis had been employed, the bowel was not in as bad condition as where omentum was not present. He thought that the presence of omentum might save the bowel from pressure.

A point which Dr. Ashhurst had not brought out, although the speaker knew that he was perfectly familiar with it, was the relative rapidity of the occurrence of dangerous strangulation in inguinal and in femoral hernia. In femoral hernia the strangulation was more dangerous in the same time than in inguinal hernia.

Dr. RICHARD H. HARTE asked Dr. Ashhurst's experience with Littre's hernia. He had seen two cases. One patient had been brought to St. Mary's Hospital after prolonged taxis, and the hernia was supposed to have been reduced. The symptoms had not subsided, and when he had seen the case the man was dying. At the autopsy it had been found that a small portion of bowel had been caught and strangulated. The second case had been seen at the Episcopal Hospital. In this case, too, an operation had revealed a small portion of the bowel which had been caught and strangulated. These cases were apt to be overlooked until rather late symptoms of strangulation made their appearance.

Dr. J. M. BARTON said in reply to Dr. Allis's question that he had had six cases of umbilical hernia and had had the misfortune to lose two. A method of reduction that he had found successful he thought was worth alluding to. In these cases the strangulated bowel was invariably in the center of a mass of omentum. The small knuckle of intestine was at the very base, and any pressure on the surface would be utterly useless. In a case of this kind, which he had seen some time before, he had grasped the abdomen above and below the hernia and had lifted the abdominal walls, actually raising the patient from the bed. At the second attempt this had proved successful. He had employed the same method in another case with success.

He had had the misfortune to operate by Tait's method. The patient was a woman fifty years of age with well-marked symptoms of obstruction. He had examined all the openings, but had not found any hernia. He had then made an abdom-

inal section and had found a small knuckle of bowel in the femoral opening. The extent of bowel caught had not been more than three fourths of an inch. The patient had been quite fat, and in order to release it he had had to prolong the incision over to the right side. The bowel had been gangrenous, and in removing it, infection had probably taken place, for the woman had died forty-eight hours later. There were no marked symptoms of peritonitis. For hernia he should not consider this operation for an instant, but he did not know that the case had been one of hernia. After delivering the intestine he had put his finger in the femoral opening, and had tried to feel it from the outside, but had been unable to, owing to the amount of tissue over the femoral opening and the small size of the hernial sac.

Dr. JAMES COLLINS had nothing to add except to mention a little manœuvre which sometimes succeeded after taxis had failed, and that was to put the shoulders on the floor and draw the hips up, making taxis in this position.

The youngest patient on which he had operated was a child two years old, and it recovered. His oldest patient was eighty-two years old. He had operated in a number of cases with success, with the exception of a few at the German Hospital. In these cases the strangulation had existed for several days. He emphasized the necessity of opening the sac. In one case where he had opened the intestine he had found, on drawing down the bowel, another band about the intestine. He had seen the same thing in other cases.

Dr. WILLIAM G. PORTER emphasized the point made by Dr. Collins as to the necessity of drawing down the bowel. He had seen two cases where the bowel in the sac had been carefully examined and found all right and returned, and had been immediately followed by a gush of liquid fæces. His explanation of these cases was that the strangulated portion had returned and a healthy portion of the bowel had come down.

Dr. SAMUEL ASHHURST had seen a case like those referred to by Dr. Harte, and this had prejudiced him against the operation without opening the sac. Taxis had been employed and the tumor had been reduced, but the symptoms had not disappeared. The patient had died, and at the post-mortem there had been found a small portion of bowel still retained within the internal ring, not involving the whole lumen.

His experience had been that almost every case of hernia stood by itself. He did not think that he had seen a case which did not present peculiar features. It was this that made hernia one of the most interesting subjects in surgery.

Dr. THOMAS R. NEILSON said that the question whether or not the strangulated bowel should be returned was a very important and often a perplexing one. He had several times been in doubt, but in all cases had returned the bowel after relieving the constriction, drawing down the bowel and searching for perforations, and noted that after bathing with hot water, the color of the bowel slowly returned. Another guide was the preservation of the luster of the peritoneal surface of the bowel. If the luster was still present it was an evidence that the vitality was not entirely destroyed.

He had had two cases of Littre's hernia or partial strangulation of the bowel. One had been in an elderly woman who had been brought to the hospital after five days of the so-called obstruction of the bowel. The patient had been practically moribund, but at the earnest solicitation of the patient he had operated. The constriction had been found at the internal abdominal ring, involving only a portion of the gut. The patient had died shortly after the operation. The second case was that of a young man with left inguinal hernia. The patient had presented a tumor not larger than a large marble, exceedingly tender, with pain at the umbilicus and a tendency to nausea.

He had operated and found a Littre hernia of the small intestine, and the patient had recovered. The possibility of the occurrence of this hernia should not be overlooked.

Dr. J. EWING MEARS reported one case of umbilical hernia in which strangulation had existed for forty-eight hours and general peritonitis had supervened. He had operated and made an artificial anus, but the patient had died within twelve hours.

Dr. O. H. ALLIS thought that the operation in umbilical hernia was no more dangerous than in femoral or inguinal hernia. Where the constriction had been prolonged, probably any form of hernia meant death. From what he had seen of umbilical hernia he maintained that if it was a favorable case the patient was as likely to get well as in a case of femoral or inguinal hernia.

Dr. JOHN ASHURST, JR., thought that Dr. Deaver was entirely correct in saying that in the majority of cases of strangulated hernia it was not proper to make an anastomosis of the bowel at the time of the kelotomy. Whether we should open the gut or resect a portion of it when gangrene was present, he thought should be decided by the extent of the gangrene. If there was only a patch, it was sufficient to open the bowel; if a large portion was gangrenous, it was probably safer to remove it. In the majority of cases it was proper only to establish a false anus, which might be subsequently dealt with. The only exception was where the surgeon had reason to fear that the portion of bowel involved was high up in the small intestine, when so much of the bowel would be cut off from exercising its digestive function that the patient would die of inanition, even if he should survive the immediate results of the operation. Under such circumstances, if the patient was in a condition to justify further interference, he thought it better to complete the operation by uniting the bowel according to one of the methods suggested. In the case in which he had removed twelve inches of the bowel and united the ends by circular enterorrhaphy, no extravasation had occurred, and the patient's death did not appear to be due to the operation.

With regard to taxis, he had intended to refer to the view of Mr. Jonathan Hutchinson, a surgeon for whose judgment he had the greatest respect. It would be remembered that he had recently, in connection with the advocacy of abdominal taxis, as he called it, in cases of intestinal obstruction, referred to the operation of kelotomy, and had maintained that the statistics of the London hospitals showed that the operation was a very dangerous one. Therefore he urged a persistent and systematic resort to taxis. There was no doubt that a surgeon who approached a case believing that it was never necessary to operate, would be more likely to succeed by taxis than one who entertained the view held by many at the present time, that taxis was almost certain to fail, and that it was therefore better to resort at once to herniotomy. The personal equation thus came into these cases. In connection with this matter he referred to a case which he had recently seen at the Pennsylvania Hospital. An old man, extremely deaf and extremely obstinate, had been brought to the hospital with a hernia that could not be reduced. The resident physician had made a reasonable application of taxis, and failed. Then he had put him under treatment with rest, cold, and opium, and had sent for the speaker, who had attempted taxis and failed. The patient had positively refused to take ether or to submit to an operation. He then had made another trial of taxis, pushing it further than he had ever done before and further than he liked to; the hernia had at last gone up, and the man went out happy the next morning.

As he said before, he had only once operated in umbilical hernia, and in that instance the patient had died. It was sel-

dom that an operation was required in these cases, taxis almost always being successful. He thought that the results of experience showed that an operation in umbilical hernia was more dangerous than in either inguinal or femoral hernia. He had been interested in Dr. Barton's suggestion to aid the taxis in umbilical hernia by lifting the abdominal wall. The same object had been accomplished by Froumüller by applying an exhausted cupping-glass over the hernia, and Dr. Washington had recommended a similar procedure.

Dr. Wharton had referred to the state of the bowel. His rule was to pay a good deal of attention to its color, and he had resorted to the use of hot water to see if the color returned. The glossiness of the bowel was also of importance. If the bowel retained its natural luster, it was usually safe to reduce it. If it was dull and lusterless, and still more if the tissues separated under the surgeon's finger, it was not safe to return it.

Reference had been made to the presence of omentum acting as a safeguard against injury to the bowel from taxis. The same thing was found where the sac contained serum. It had been a clinical observation of the late Professor Joseph Pancoast that when he opened a hernial sac and found a quantity of bloody serum he felt that the patient was going to do well. In such cases the serum served as a cushion to prevent damage to the hernia from the taxis.

Dr. Collins had referred to taxis with inversion. Before the days of anæsthesia this method had been regarded as of great value, but, like other "adjuvants to the taxis," was, he thought, now seldom resorted to.

Dr. Porter had spoken of the gush of feces that occurred sometimes when the bowel was reduced. This, he believed, was due to the sudden "letting on," as it were, of the peristaltic stream, rupture occurring at the sulcus which marked the point of constriction. In all cases, therefore, it was important to make a thorough examination of the bowel, and, if the sulcus was found, not to effect reduction of the part which had been constricted.

Reference had been made to the persistence of symptoms after reduction. In such cases he thought it was the generally recognized rule that the sac should be opened and an attempt made to bring the hernia down again. If this could not be done, it would be right to extend the incision upward, which he thought would be safer than making a median section. The same rule applied where there were symptoms of strangulation and a hernial sac was, on exploration, found empty.

Dr. Harte and Dr. Neilson had referred to strangulation of a portion of the caliber of the bowel, often spoken of as Littre's hernia, but more accurately designated as Richter's, Littre's being a hernia of one of the natural diverticula of the gut. These cases were apt to be overlooked, and abdominal section for these partial herniæ had therefore been resorted to, the same operation having also been practiced for obturator hernia. In some cases it was impossible to recognize the existence of a hernia, and under such circumstances abdominal section might properly be employed; but where hernia in any particular position was suspected, he thought that it would be advisable to open and explore at this position, rather than to begin with abdominal section.

Dr. Wharton had spoken also of the relative dangers of delay in femoral and in inguinal hernia. Femoral hernia would not bear temporizing, and taxis should not be tried with the same persistence as in inguinal hernia.

Contusions and Sprains of the Back, with Special Reference to the Early Treatment of these Injuries.—Dr. HENRY R. WHARTON read a paper in which he gave the histories of nine cases.

It would be noticed that in these cases the lumbar-dorsal re-

gion of the back had been the part most frequently injured, and this part seemed to be that which had been most commonly the seat of contusions and sprains. As regarded the treatment of contusions and sprains of the back, he considered that rest in bed was a matter of the first importance, and in addition he had found that the pain and general discomfort of the patient was much diminished and the time of treatment much shortened by having the back firmly strapped as soon as the patient came under observation. The strapping of the back was effected by taking strips of resin-adhesive or of rubber-adhesive plaster two inches and a half in width, and long enough to extend half way around the body; these were applied so as to cover in the back, one strap slightly overlapping the other, from a point just below the junction of the last lumbar vertebræ with the sacrum to the lower ribs. These straps had often been removed at the end of two or three days, and the back had been restrapped if the pain and tenderness still persisted. The straps had usually been allowed to remain in place until the patient was up and about, without complaining of pain or discomfort in the region of the injury. In cases of severe contusion the straps often required renewal a number of times.

This method of treatment of contusions of the back had first been called to his notice by Professor Ashhurst while serving as resident physician in his wards at the University Hospital, and since he had employed it he had entirely discarded the use of fomentations and stimulating lotions, which were generally recommended in the treatment of these injuries.

The treatment usually recommended in contusions and sprains of the back was warmth, frictions, stimulating liniments, anodynes, acupuncture, galvanism, and massage, and of these he thought massage was the most valuable, employed after the acute symptoms following the injury had subsided; but in the early stages of these injuries he was convinced that strapping would be found the most satisfactory method of treatment.

He had observed that the application of straps employed as above described was usually promptly followed by relief of pain, and the fixation produced allowed the patient to move with more comfort, and he was very certain, after having employed this method of treatment in a considerable number of cases, that the time required for the recovery of the injured parts was much shortened. Many of the cases reported had been comparatively trivial injuries, and the patients had recovered in a short time; but even in this class of cases the suffering was often very intense for the first few days. In three cases bloody urine had been passed for a few days after the injury, showing that the injury had been severe enough to produce laceration or contusion of the kidney. Lidell,* in his very excellent article upon contusions and sprains of the back, spoke of the frequency of hæmaturia in these injuries when powerful blows had been delivered upon the lumbar or dorsal region of the back. The recovery, so far as the speaker knew, in all of the cases reported had been satisfactory, except in Case IV. In this case the patient had developed, some months after leaving the hospital, symptoms of traumatic neurasthenia, complaining of pain in the back and head, and vertigo, and he had brought suit against the contractor for whom he had been working at the time of the injury. From what Dr. Wharton had heard of this case, and from the fact that, when it had been ascertained that the patient had been doing his ordinary work, the suit had been settled for a trivial sum, he was inclined to think that the symptoms developed had not been severe, and might be classed as litigation symptoms.

In cases of severe contusion or sprain of the back when

there was inability to stand or there was present great pain on motion, and where tenderness over the spine and a certain amount of fixation was present after the injury, he thought there was too much tendency to attribute the symptoms resulting to an injury of the spinal cord or membrane, which injuries when unaccompanied with fractures of the vertebræ were extremely rare; whereas the injury resulting to the muscles, ligamentous structures, and nerves, with perhaps the wrenching and laceration of the vertebral articulations, was perfectly possible to account for the symptoms resulting, and he agreed with Mr. Page that many of these cases were well described by the term "traumatic lumbago."

As contusions and sprains of the back were injuries which were often followed by the development of symptoms which were described as traumatic neurosis, or traumatic neurasthenia, it seemed to him that these were cases which should be carefully treated when they first came under the observation of the surgeon, for he was sure that many of these patients if so treated by rest and fixation for a short time would make more complete recoveries, and would be less likely to develop the symptoms above described. In cases of contusions or sprains of the back, in which symptoms of traumatic neurasthenia developed and gave rise to litigation, it was often difficult for the surgeon to estimate how far the original shock of the system following the injury was responsible for the symptoms presented. In many cases the objective signs presented left no doubt of the severe nature of the injury, while in other cases the symptoms complained of were mainly subjective in their character, and these were the cases which gave rise to the most troublesome litigation. It was often difficult to decide whether the symptoms presented were merely assumed or exaggerated for fraudulent purposes, or whether, without any attempt at deception on the part of the patient, injuries trivial in themselves might be unconsciously exaggerated, and be apparently productive of serious results. Although many severe injuries of the back apparently recovered without developing such symptoms as had been described, there was no doubt that the element of compensation for the suffering and disability from the injuries received played an important part in the exaggeration of these symptoms, and that expectancy might be justly credited with an important place in their exaggeration. In cases of serious disorder resulting from contusions and sprains of the back, often apparently trivial, the symptoms developing were usually progressive in their character, and soon there would become manifestly marked objective signs, such as paralysis, disturbances of the reflexes, loss of electrical excitability, disturbances of the bladder, loss of flesh, sleeplessness, etc., which placed the existence of morbid changes beyond a doubt.

Dr. JAMES COLLINS regarded the method described as ideal with one exception. His habit had been to suspend the patient and then fix the back, not necessarily to lift him up, but simply to make the back straight. He regarded this as necessary to make the treatment ideal.

Dr. JOHN ASHHURST, JR., had often resorted to this mode of treatment. Where the condition was one of contusion rather than of sprain, he commonly applied lead-water and laudanum, or some similar fomentation, until the superficial tenderness had passed away, and then applied strapping. In sprain or partial rupture of the muscles of the back, the immediate application of straps or of some other means of securing complete rest was all that was required, but where there was a positive contusion there was, he thought, advantage in first using anodyne fomentations for a few days.

Dr. RICHARD T. HARTE said that he had seen many contusions of the back at the Pennsylvania Hospital, the force often being received over the ribs and transmitted to the vertebræ.

* *International Encyclopædia of Surgery*, vol. iv, p. 700.

In these cases he thought that there was a certain amount of synovitis and arthritis between the end of the ribs and the vertebrae. In all these cases treatment by strapping had given immediate relief. If the patients were allowed to go without treatment they often went from bad to worse and had a long convalescence.

Dr. JOSEPH HEARN said that it might be of interest to refer to the diagnosis between lumbago and sprain in the back. If a person sprained his back he went about his work for an hour or two without any discomfort, but when he took a rest he could not get up. In lumbago the pain came on suddenly and continued.

Dr. WHARTON said that he had had no experience with suspension, as he had been satisfied with the use of straps.

In cases where there had been contusion with effusion of blood he had formerly used lead-water and chloride-of-ammonium lotion, but in his recent cases he had resorted to strapping, even when this condition had existed. In these cases the patients had experienced relief, and the pressure probably had limited the effusion of blood.

Dr. JOHN H. PACKARD exhibited some self-retaining glass drainage-tubes.

Brain Tumor, probably Tubercular, in a Child, treated with Large Doses of Iodide of Potassium with Marked Improvement.—The PRESIDENT presented a patient for examination whom he had seen in consultation with Dr. Charles A. Groff. The patient, aged seven years, had exhibited the symptoms of a brain tumor which had been thought might be operable. Eye examination by Dr. Oliver had confirmed the diagnosis, and located the tumor in the posterior portion of the base of the brain. In view of the result obtained by this examination, it had been deemed advisable to try the curative effects of large doses of iodide of potassium, given in gradually increasing quantities; one hundred and three grains daily had been finally administered with decided amelioration of the symptoms and without any ill-effects from the use of the drug.

The history of the case was given by Dr. Groff as follows:

Elsie E., aged seven years. She had first come under observation in December, 1892, and complained of severe headaches, which occurred almost daily and lasted for hours, during which the child had been compelled to lie down until sleep had come to her relief, apparently as the result of exhaustion. This had existed for two years, gradually becoming worse.

The father, a painter by trade, had never been sick in his life, and had never had syphilis; the mother was strong and healthy; and had no knowledge of having been sick.

There was a younger child, less than two years old, born with equino varus, which difficulty had been almost entirely corrected by the use of splints and bandages.

An examination of the patient at the date mentioned had shown at once defective vision and a slight paralysis of the right side, especially of the lower extremity. She had been put upon bromide of potassium and had been sent to an ophthalmic surgeon, who had treated her for some time, but no improvement in vision had been noted, nor had the headaches been lessened. She had then been sent to a second ophthalmic surgeon, who had diagnosed a brain tumor and said that nothing could be done for her.

In February, 1893, she had been put upon iodide of potassium, six grains daily, which had been gradually increased until August, when she took thirty-three grains daily. At this time the headaches had lessened in frequency, the condition of paralysis had remained stationary, but the difficulty in vision had seemed to be increasing.

Dr. Mears had seen the patient on August 7th in consultation. He agreed with the speaker in the diagnosis, also in the

treatment, and had advised the increase of the iodide of potassium. This had been done, ten grains having been added to the daily dose every two weeks until the child was taking a hundred and three grains daily. This point had been reached in November, 1893, and had been continued until February, 1894, when the amount had been decreased to ninety grains daily, which quantity she had been taking up to the present time. As the remedy had been increased, there had been evident improvement in the condition of the patient. The headaches had been much lighter in character, and occurred at markedly increasing intervals until now they had practically ceased. The paralysis was much less marked, and Dr. Charles A. Oliver, who had made repeated examinations, said her vision was improving.

Appended is the report of Dr. Oliver showing changes occurring under the administration of the large doses of iodide of potassium.

Ophthalmic Examination, September 26, 1893.—Neuro-retinitis of a soft oedematous type, the left nerve head being the more swollen; both the retinal arteries and the veins were reduced in size, especially the latter; the left iris failed to respond to the strongest light stimulus; the right iris seemed to respond at times; the vision of the right eye was reduced to a doubtful light perception in all portions of a considerably contracted field; the vision in the left eye was still further reduced to a faint recognition of light from the temporal side. These ocular conditions, with the general history of the child, had given a diagnosis of brain tumor with enlargement of the ventricles; the supposed neoplasm having been probably tubercular in character and situated in the posterior portion of the base of the brain (cerebellar?).

On October 18, 1893, there had appeared to develop a doubtful left homonymous hemianopsia, the nerve heads shrinking. No tubercular deposits could be recognized in any part of the fundus of either eye.

The irides had gradually and interchangeably bettered in their reactions, the fields of light perception had obtained both subjectively by the patient's recognition of the position of the light, and at times objectively by the movement of the irides, until at the present time they seemed to respond much more freely than when the patient had first been seen. Vision, which was reduced to perception of light, varied extremely upon different examinations, though relatively it was slightly better than when the patient had first been seen, the examination at the last visit having reversed the comparative areas of recognition in the right and left fields. Ophthalmoscopically, the nerve heads were considerably shrunken and had become markedly atrophic.

New Inventions, etc.

AN IMPROVED STETHOSCOPE*

By REYNOLD W. WILCOX, M. D., LL. D.,

PROFESSOR OF CLINICAL MEDICINE AND THERAPEUTICS AT THE NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL; VISITING PHYSICIAN TO ST. MARK'S HOSPITAL.

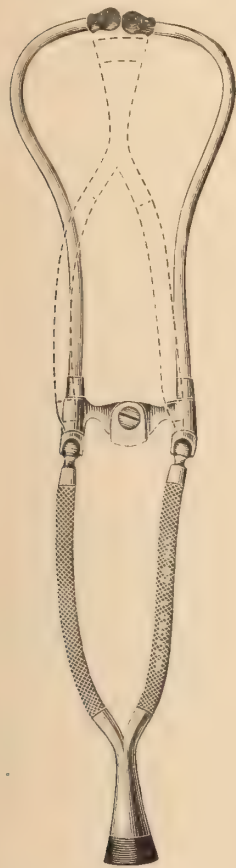
The best type of stethoscope is, beyond all argument, the Cammann. The examples as found in the shops, however, leave

* Presented at the May, 1894, meeting of the Harvard Medical Society.

much to be desired. In many the aural extremities are not of the proper size, nor bent at the proper angle. The pectoral extremity is too large or too small, and the opening of improper shape. Frequently the lumen of the tubes is occluded. The use of rubber bands, open spiral or other springs, which regulate the aural pressure, is objectionable, in that they give rise to disagreeable vibrations which are produced by the breath of the auscultator. The fittings between the proximal and distal parts are not well made, so that the instrument is likely to fall apart when in use. The latter objection was remedied by the use of the bayonet joint, but this was objectionable in that the pivot was likely to tear the pocket if the instrument was carried in it. Many stethoscopes as found in the shops are unnecessarily long and heavy. Further, the change from rubber to metal, to rubber, again to metal, gave rise to a loss of conduction, especially when, as frequently happens, the spiral wire which is concealed in the flexible tube is not carefully inserted at both

its proximal and distal ends. During the ten years in which I have taught physical diagnosis to graduates in medicine I have found more obstacles to inducing physicians to use a stethoscope because of imperfect instruments than because of any difficulties in acquiring the art of auscultation. And those physicians who attempted to use the Cammann and have abandoned it have generally been found to possess an instrument faulty in one or several of the defects enumerated above. In the present instrument the various devices for holding the instrument in place have been abandoned and an entirely new, concealed spring, which is carefully adjusted as to pressure, is substituted. In order to secure the best possible aerial conduction the lumen is of uniform caliber throughout, that of the pectoral extremity being twice the size of the aural tubes; the division between the conducting tubes is at an acute angle; the whole instrument is shortened as much as is possible. In order to secure conduction by contact, with the exception of the aural and pectoral extremities, the instrument presents a continuous metallic connection. That contact conduction is important was recognized

by Laennec himself, for he called attention to the fact that while the open instrument was to be used in exploring the respiration and rattle (râles), the stopper or plug should be inserted into its excavated extremity in exploring the heart and voice (Forbes's translation of Laennec's *Diseases of the Chest*, 1830, p. 6). Further, for those physicians who suffer from diseases of middle ear in whom bone conduction is increased over the aerial the greatest possible contact conduction is required, and this has been carefully considered in this instrument. Lastly, the form of the pectoral opening has been changed from the various modifications of a cone to that of a paraboloid, thus increasing the sound waves which reach the tympana. The two parts of the instrument are connected by ball-and-socket joints, partly for convenience in transportation and in use, but also to increase the contact conduction of the instrument. After six months' use of the instrument by a considerable number of physicians, I am led to place it in the hands of the profession,



believing that it possesses many advantages over those which are in common use. I am indebted to C. F. Ford, of the W. F. Ford Surgical Instrument Company, for carrying out my suggestions.

706 MADISON AVENUE, *June 1, 1894.*

Miscellany.

Gonorrhœa and its Effects.—The *Hospital* for June 9th publishes an article on this subject in which the author remarks that gonorrhœa is a disease which deserves more careful consideration than is often given to it. It may be merely a specific and contagious form of urethritis, or it may be a widespread disease affecting eyes, joints, and lymphatics, as well as the whole genito-urinary tract from the testicles to the meatus, or from the ovaries to the vulva. The importance attributed to the disease, he says, depends largely on the point of view from which it is regarded. We must go beyond the gleet, the strictures, and the urinary troubles; we must consider the leucorrhœa and failing health of so many women, the inflamed Falloppian tubes, the resulting sterility, or the inflammations and abscesses arising after parturition, and in the next generation the loss of sight, together with rickets and tuberculosis resulting from early weaning. These are the things which must be looked at in order to estimate completely the importance of the gonococcus and its doings.

With regard to the treatment of acute purulent gonorrhœa, says the author, there is no great difference of opinion as to the propriety of rest, abstinence, alkalies, laxatives, and cleanliness. There is, however, some difference as to local treatment, some medical men maintaining that with the exception of warm bathing no local treatment is admissible; whereas others strongly recommend hot irrigations. These, however, should be of the mildest nature, very weak solutions of permanganate of potassium at a temperature of about 105° being the most useful. The abortive treatment is a question of importance; some physicians think it useless and dangerous, and others pin their faith to it. If it is employed, it must be undertaken at the very beginning, says the author, in the stage of itching and gumming, and not in the full discharge, and considerable experience seems to have been gathered during recent years pointing to its efficacy if undertaken at that period. In the earliest stages of the disease the virus lies very superficially, and can be destroyed by prompt therapeutics. Mere injections, however, are not sufficient for the purpose. The mucous membrane of the anterior portion of the urethra, and especially of the fossa navicularis, should be thoroughly rubbed with a pledget of cotton wool wound on a probe, and after this rubbing, when all the mucus and the superficial epithelium have been dislodged from the inflamed membrane, a small quantity of a two- or a three per-cent. solution of nitrate of silver should be injected and allowed to remain for a few minutes. The injection should be repeated the next day. If the disease has not penetrated too deeply, it will be aborted, and much suffering will be saved.

It is after the acute stage has subsided, says the author, that infection is more apt to spread, for, although the disease may pass away completely under careful treatment, it happens in a number of cases that some gleet discharge, which is certainly infectious, continues for a long time; in fact, it is very difficult to know when the capability of infection ceases. In the great majority of cases, by careful living, by the use of

balsams, and by local treatment of the urethra by means of bougies or injections, this gleet condition may be removed. Sometimes the continuance of this discharge is due to the existence of small points of ulceration or patches on which granulations have developed, or to the presence of disease in the posterior part of the urethra which continually infects the parts in front and against these conditions general medication is helpless. These things require special instruments and experience in the use of them, and, if the ordinary treatment fails, the patients should be sent to a specialist, for, above all things, continues the author, it is essential that they should be cured.

Creolin in the Treatment of Leprosy.—The *China Medical Missionary Journal* for March publishes accounts of two cases of leprosy. The first patient, a young man seventeen years of age, had his arms, legs, and face covered with large, prominent leprosy nodes, some of which had ulcerated. The skin over and around the nodes was anæsthetic, and beneath the skin innumerable smaller nodes could be felt. He was put under the influence of ether, and about fifty of the larger nodes were removed by making an incision in the skin and scraping with a Volkmann's spoon. The ulcers also were scraped and all the wounds were dressed with lint saturated with a mixture of creolin and glycerin. They healed rapidly, and afterward the whole skin, wherever nodes could be felt, was rubbed every day with the same mixture. This treatment was continued for nearly three months, and the patient was dismissed with no trace of the disease, except scars and a few anæsthetic patches on his arms and legs. The second patient, a man twenty-eight years old, noticed that his eyebrows had begun to fall off, and applied for admission into the hospital. He showed the characteristic appearance of leprosy; the upper lip was very thick, the outer half of each eyebrow was gone, the margins of the eyelids were thick and hairless, there was slight ptosis, and there was constant lacrymation. *Lepra bacilli* were found in fluid taken from his face. The fingers were numb but not distorted. The mixture of creolin and glycerin was rubbed into the affected parts every day for about two months, and electricity was applied to the eyelids and to the hands. The improvement in this case, the author says, was slow, but satisfactory. The eyebrows began to grow, lacrymation ceased, and the lip was reduced to its normal size. The ptosis continued, and the eyelids were not very much improved in appearance, owing to the difficulty of applying the creolin to them, but the fingers regained their sense of feeling, and altogether the patient was much improved. The author saw him about a month after he had left the hospital, and up to that time there had been no return of the disease. The author thinks that if leprosy is treated in its early stages it can at least be checked, but whether it can be eradicated remains to be proved.

Cancer Houses and their Victims.—The *British Medical Journal* for June 9th publishes an article on this subject by Mr. D'Arcy Power, of London, in which he says that attention has again been called to the interesting fact that cancer may repeatedly show itself in the same house. He cites the following instances, which were related to him by the physician under whose observation they had come, as illustrations of this point: A woman, forty-seven years old, lived in a certain house for thirteen years and died of cancer of the stomach. Another woman, who had lived twenty years in the house, succeeded to her place and occupied her bedroom, and died of cancer of the liver a year later. Her successor, a woman, sixty-seven years old, who had lived in the house for eight years, died of cancer of the liver and uterus about nine years afterward. These women had apparently been in perfect health before serving as

housekeeper in the establishment. They were not related. In another house, within a period of fourteen years, four persons were affected with cancer, three of whom died. Mr. Power quotes from Dr. Fabre's treatise on *The Contagion of Cancer* the following observation by Dr. Mollière: "There is a house in Lyons which has long been occupied by well-to-do people. In 1873 the owner, who lived on the first floor, died of cancer of the stomach. Four years later a tailor, who lived in the *entresol*, died, also of cancer of the stomach. The porter died three years later of the same disease, also affecting his stomach. Finally, a man who lived on the second floor was attacked, two years after the death of the porter, with cancer of the cervical glands and died within a year. Thus in ten years four deaths from cancer occurred in the same house."

These and other cases cited by the author may be, he says, and probably are, mere coincidences, yet they may point to a more specific origin of the disease. It is impossible to explain them as yet, but such local outbreaks have to be taken into consideration in all investigations with regard to the causation of cancer. The cases, however, are so rare that it is better to record them as they occur than to argue as to their origin, for, he says, any conclusions arrived at now would be based only upon insufficient premises, and would therefore be worthless.

A Case of Serious Epistaxis.—At a recent meeting of the *Société française d'otologie, de rhinologie et de laryngologie*, a report of which is published in the *Annales des maladies de l'oreille, du larynx, du nez et du pharynx* for June, M. Miot related the following case which had come under his observation, and was, in his opinion, a unique one because of the tenacity and frequency of the hæmorrhages, the effect they had on the patient, and the varieties of treatment employed. He believed that he had obtained a cure by the employment of a treatment which had not been used in similar cases: The patient, a young man of twenty-one years, had been subject from the age of fifteen months to attacks of bleeding from the nose which occurred every two weeks, then every week, and finally twice a week. When he was five years old he had had a severe attack which resulted in syncope, and it was impossible for him to eat. Iron chloride was prescribed and seemed to bring about some amelioration, but a year later the attacks returned and persisted at regular intervals up to the age of eleven years. At this time the hæmorrhages increased in frequency and weakened the patient more and more. The case was diagnosed by a specialist as one of varicosities of the nasal septum. The treatment consisted in cauterizing the dilatations, and in using insufflations of iron chloride; but this medication had no permanent effect and the patient became weaker and was soon in the last stages of cachexia. Dr. Miot was then consulted, and he found the child pale, bloodless, and incapable of making the least movement without bringing on syncope. A small stream of blood oozed from the nostrils, which were filled with clots, and the author attempted an examination in order to ascertain the cause of the bleeding, but at the least touch the hæmorrhages and syncope followed each other in quick succession. Finally, however, the author was able to clear out the clots from the nasal cavities, and he then applied a tampon of wadding saturated with boric acid and Bonjean's ergotine. The bleeding stopped, and the following treatment was then prescribed: 1. A tampon of cotton saturated with ergotine to be applied every twenty-four or forty-eight hours. 2. Tonics. 3. Complete rest in bed for several days. The bleeding diminished in frequency for some days, but very soon it began again, although at longer intervals, and the patient's condition was so wretched that it was imperative to try some other remedy at once, and the following was resorted to: 1. Layers of cotton satu-

rated with ergotine, with stérésol or a watery solution of anti-pyrine applied to the septum every day at the least. 2. Nasal douching with boric-acid water two or three times a day. 3. Preparations of iron, manganese, and sodium sulphate, as these gave the best results with regard to the general condition. 4. Strict hygienic conditions. This treatment was rigorously followed, and gradually the general condition improved, strength returned, and the patient could eat. Dr. Miot then decided to begin the curative treatment, and employed electrolysis, with which he obtained the best results, and at the end of several months recovery was complete. The author concludes from this that when there is an erectile or varicose tissue of a certain extent to deal with, electrolysis is the best means. The electrode, in the form of copper or silver needles, is introduced into the hæmorrhagic tissues. The number of the needles varies according to the extent of the surface affected, and from two to five needles at each application generally suffice. The intensity of the current is from sixteen to twenty milliampères, and the sitting lasts from eight to ten minutes. The positive electrode should be large and applied to the side of the face corresponding to the nasal cavity affected. Silver and copper needles seem to exercise a more energetic action, although the substance of the needles is not a matter of great importance. M. Miot has had occasion to employ this method in two other cases of obstinate bleeding from the nose, and in each case has obtained the same results.

Abscess of the Seminal Vesicles.—The *Journal des praticiens* for May 23d contains an abstract of an article which was read by Dr. Reich at a recent meeting of the *K. k. Gesellschaft der Aerzte in Wien*, in which he presented the case of a young man twenty years old. At the beginning of January, 1894, the patient was treated for blennorrhagia, and on the 20th orchitis developed. The man's temperature was 101.3° F. in the morning and 104° in the evening. By the rectum, the region behind the prostate, at the level of the seminal vesicles, was soft to the touch and sensitive to pressure, which, when persisted in, caused a discharge of pus from the urethra. The patient complained little of the region attacked, but often, says the author, there is a sensation of pressure, sometimes with sharp radiating pains, painful defecation, and painful ejaculation of reddish-brown semen, pus, and blood. Dr. von Dittel opened the abscess by making a perineal incision. The rectum was bent down to the left, the coccyx cut off, and the suppurating part cleared out and immediately washed. After several days, during which there was fever, the patient recovered, and at the end of a month he was cured. This method, remarks the author, seems preferable to others, because it can be carried out antiseptically, which can not be done with simply puncturing or cutting the rectum and draining it.

A Legal View of Physicians' Remuneration.—A writer in the *New York Law Journal* comments on Dr. William A. Hammond's article, *What Should a Doctor Be Paid*, published in the June number of the *North American Review*. After quoting Dr. Hammond's reference to the willingness with which great sums are paid to brigands for ransom and the reluctance with which much smaller fees for conspicuous medical services are paid, the writer says:

"We are glad that this illustration was used, for it brings out the essential vice of Dr. Hammond's contention so forcibly that extended counter argument is unnecessary. The discussion has a bearing upon fees for legal services as well, and, as to both professions, the theory above set forth logically involves a system of banditti's ransom, rather than conscientious service to mankind for a fair and just compensation, determined by the compara-

tive seriousness of the service and the standing and experience of the doctor or lawyer rendering it.

"Dr. Hammond draws envious comparisons between fees of physicians and those of lawyers, which latter often are to an extent determined not by intrinsic standards, but by the *rem* involved. This distinction, when it exists, arises from the nature of the *rem* itself. Where rights of property are the only thing concerned in a legal proceeding, it is not improper that the value of the property gained or protected for a client should enter as an element in the problem of determining the proper remuneration. In cases where it is allowable for lawyers to undertake business on contingent fees, the justice of a proportionate rate of compensation will be quite generally recognized. Ordinary collection business obviously falls under the same rule, as does also conveyancing, where a principle not unlike that of insurance comes into play. Forms of legal business that are more analogous to medical services are criminal proceedings and matrimonial cases. The contention has been made, and even judicially sanctioned, that it is legitimate for a jury to gauge the value of legal services in defending a person on a criminal trial according to the latter's wealth, which proposition we deem unsound in principle and inevitably tending to make legal practice a mercenary system of ransom or tribute. The temptation of an advocate to perform unprofessional acts and entirely lose sight of the proper restraints of an officer of the court, in defending a rich rogue on a criminal charge, would obviously be greatly increased if the counsel realized that success would legally entitle him to a certain proportionate share of the client's fortune, no matter how large it was.

"One passage from Dr. Hammond's paper, however, offers a suggestion toward the true rule for fixing charges for professional services which are purely personal in their nature. He says:

"The value of medical services is always great, and it is only the rich who can properly compensate the physician who renders them. When the same services are given to a poor person, it is impossible that they can be adequately rewarded, and hence smaller fees are cheerfully received. It is really not that the rich are charged more, but that the poor are charged less. It would seem right that medical fees should be arranged upon the basis of the patient being worth a certain amount (say \$100,000), and that the *honorarium*, if he chooses to use that term, should be adjusted accordingly, being more or less as the wealth of the patient was greater or less than the sum fixed upon."

"In dealing with rich patients and clients, physicians and surgeons, and lawyers acting in cases not involving specific property, should make out their bills not commensurately with the wealth of their employer, but simply on the basis that he is rich enough to pay whatever is right. The charges should be fixed according to the practitioner's standing and experience and the amount of labor involved, the customary rates of practitioners of equal standing in the same community for similar services being kept in view as a guide and a possible corrective. This general rule would not preclude the acceptance of smaller fees from poor people, but it would debar a practitioner from charging a man worth \$1,000,000 more than one worth \$100,000 for the same service. We believe it is essentially communistic and subversive of professional conscience and dignity to charge a rich man all that can be screwed out of him, in order to make up for what one thinks he ought to have received on account of professional acts of charity or mercy."

The Growth of the Diphtheria Microbe.—The fact that many health authorities officially recognize true diphtheria

only when the growths contain the Klebs-Löffler bacillus has brought to light a lack of uniformity in the growth of this microbe. Dr. E. Klein writes in the April number of the *Quarterly Journal of Microscopical Science* that in the diphtheritic membrane, in which the progress of the disease is still active, the diphtheria bacilli abound, not only in the characteristic form, but also with the protoplasm segregated into spherical, cubical, or cylindrical particles, with a knob-like or club-shaped enlargement of one or both ends, sometimes of great size and containing vacuoles. After being from twenty-four to thirty-six hours in agar culture, when the growth is in its initial and most active phase, large numbers of the bacilli occur which are shorter or longer threads with marked segregation of the protoplasm and with terminal knobs. A subcutaneous injection of a virulent culture of the *Bacillus diphtheriæ* into a cow produced a deep necrotic tumor containing connected masses or clumps in the growing margins of which Dr. Klein noticed the diphtheritic bacilli appearing in the form of threads with spherical or oval swellings and conspicuous terminal knobs strikingly resembling the ends of growing hyphæ. The subjacent muscular fibers were being gradually destroyed by the growth of these threads into their substance. In sections of the tumor, stained with a mixture of eosin and methyl blue, the growing threads are blue, contrasting with the reddened muscular substance, and the appearance is convincing that the threads are forms of active growth and not of involution. Dr. Klein has isolated by culture the diphtheria bacillus from the milk of cows successfully inoculated with this microbe, and in the gelatin cultures the young colonies were almost entirely made up of thread-like forms with terminal swellings. Though the Klebs-Löffler bacillus under many conditions conforms with what corresponds to a typical bacillus, these threads, with the local accumulation of their substance, and with the terminal knob-like or club-shaped enlargement of their protoplasm, do not harmonize with the fundamental character of a bacillus, but rather suggest a close alliance with the form of a mycelial fungus.

The Experimental Inoculation of Warts.—The *Journal de clinique et de thérapeutique infantiles* for June 21st publishes an article by Dr. G. Variot, who had observed in a child, ten years old, typical warts on the back of the hands and pedunculated papillomata on the eyelids. The author concluded that there had been self-inoculation caused by friction, the child having been in the habit of rubbing the eyelids with the fingers. This child had been brought to a dispensary, where two medical students were present with the author. He noticed how this multiple localization favored inoculation, and he proposed to these students that they should become inoculated in order to remove all doubt, to which they consented. An abrasion was made in a small flat wart on the child's hand—one that appeared to be still in its first growth, and on which the papillary protuberances were not distinct. After washing away the blood with a tampon of absorbent cotton, the point of an ordinary needle was thrust into the surface of the wart, and then with this needle several punctures were made in the skin of the students' fingers. The punctures were very superficial. Nothing resulted from this in the case of the younger student, but two months afterward the older one noticed that the epidermis, where the puncture had been made, had become thick and somewhat opaque. There was a sort of disc from two to three millimetres in extent the outline of which was distinct. A month later he discovered a pimple, a hard and somewhat sensitive elevation in the region corresponding to that of the disc. Very soon this protuberance became covered with small points, and had a typical warty aspect. A month later the

author made an examination and found an excrescence of three millimetres in diameter, the surface of which was covered with horny protuberances which became more apparent when the epidermis was scratched. The consistence of this small mass was hard, and, on pressure, it was somewhat painful. There was no redness or any inflammatory reaction of the derma. The student's general health was good.

The author quotes the following from M. Besnier's annotation on Hebra's and Kaposi's work on the bacteriology of warts: "Cultures of microbes of warts on agar-agar have given greenish-yellow masses. The warts obtained by inoculation have not yet been examined under the microscope, but the examination of preparations makes it even now probable that these warts really represent common warts. With these cultures ten inoculations were made on four animals, and two yielded satisfactory results. About fifteen days after the inoculation, warty excrescences were discovered of about the size of a grain of hempseed, somewhat flattened, and brownish in color."

The value of inoculations made with cultures is above all criticism, but Dr. Variot thinks that those made directly with the lymph taken from the wart are of equal value.

Microbes inoculated in the epidermic layer multiply slowly, and in some instances more than two months had passed before an appreciable change of the epidermic layers and a hypertrophic reaction among the papillæ had been observed. Whether the development of warts experimentally inoculated is also always slow, the author says it is impossible to say, judging from the single instance which he has related. If similar experiments have already been made by other physicians, the process of the evolution of warts can be compared and certain conclusions formulated. It is certainly an established fact that warts are self-inoculable and capable of inoculation from one person to another.

The prophylactic measures which the author had prescribed, in the *Journal de clinique et de thérapeutique infantiles* for December, 1893, for avoiding the propagation and spread of warts should be strictly observed.

It is necessary, he says, to watch warty children carefully, to see that they do not rub or scratch the skin on the face or on the body with their hands, and in schools children should avoid coming in contact with those who have warts.

The New Bloomingdale Asylum.—The following announcement has been issued by the Society of the New York Hospital:

"To the Medical Profession and Friends of the Institution: The present expectation is that the medical work now carried on in the Bloomingdale Asylum at 117th Street, between Amsterdam Avenue and the Boulevard, New York city, will be transferred during the present season (the women in August and the men in September) to the new Bloomingdale, White Plains, Westchester County, N. Y., where for the last two years an institution of the most modern and liberal character has been in preparation.

"It is confidently believed that the new Bloomingdale, White Plains, will contain all essentials for the best care and treatment of that class of the insane among which the work of the society has lain for so many years. The new buildings are of the pavilion type, loosely grouped together, of a cheerful appearance, and are situated upon an elevation from which pleasant inland views are obtained on all sides. They are in the midst of extensive grounds, well adapted to the outdoor enjoyments of the patients. The immediate surroundings of the institution will be comfortable and attractive. Elevators, electric lighting, many single and connected rooms for the individualizing of cases, special departments for hydro-therapeutics, electro-thera-

pentics, massage, etc., are incorporated in the plan, and it is expected that these will be, in their proper places, essential features of the treatment.

"No break will take place in the work of the hospital on account of its change of location.

"The transfer of patients from the old to the new institution will be made at the season of the year when such residents of cities as are able are accustomed to spend some months in the country, and the new institution is situated in a region which attracts many such summer residents on account of its healthfulness, pleasant drives, and ready accessibility from New York.

"After the removal has taken place, the medical superintendent may be seen on Mondays, from three to four o'clock, and some medical officer on Wednesdays and Saturdays, from twelve to one o'clock, holidays excepted, at the New York Hospital, 8 West Sixteenth Street, New York city, by persons desiring to inquire about patients, to arrange for new admissions, or to obtain other information regarding the institution.

"The new institution will have accommodation for about three hundred and fifty insane patients. Application for the admission of a patient should be made by some friend acquainted with the facts in the case, either at the institution, by letter or telephone, or at 8 West Sixteenth Street, New York city, at the times mentioned above, when arrangements for the admission of the patient may be made, if a vacancy exists and the case is a suitable one.

"The new institution may be reached by the Harlem Railroad by some thirty daily trains from the Grand Central Station, Forty-second Street and Fourth Avenue, New York city, eleven of which are express trains, that make the trip in less than three quarters of an hour. Public conveyances are always at the depot to convey passengers to the institution, which is about twelve minutes farther, and a special mode of transit may be provided if the necessity seems to justify it.

"On Saturday afternoons, between half-past one and five o'clock, Bloomingdale carriages will meet authorized friends of patients desiring to visit them. Carriages will also meet patients at the station at any train, if sufficient notice is received. Sunday will not be a visiting day. Friends of patients under treatment may make inquiries about them on non-visiting days, by note or telephone, No. 204 White Plains, or at the times mentioned as office hours in New York city. Parcels for patients may be sent by the American Express Company. They should be directed to Bloomingdale, White Plains, and have some name, without or within, indicating the patient to whom each package belongs. All communications by mail or messenger relating in any way to patients or to the business of the institution should be addressed to the medical superintendent, Dr. Samuel B. Lyon, telephone 204, White Plains."

The Association of American Medical Colleges.—The following resolutions were adopted at a meeting held in San Francisco on June 7th:

Resolved, That colleges, members of this association, shall require of all matriculates an examination as follows: (1) An English composition in the handwriting of the applicant of not less than two hundred words; said composition to include construction, punctuation, and spelling. (2) Arithmetic, fundamental rules, common and decimal fractions, and ratio and proportion. (3) Algebra—through quadratics. (4) Physics, elementary. (5) Latin—an amount equal to one year's study, as indicated in Harkness's *Latin Reader*. (This resolution does not apply to students exempt from the entrance examination, as per Sec. 2, Art. III.)

Resolved, That the following classes of students be recognized as entitled to apply for advanced standing in colleges

members of this body: (a) Such graduates of recognized colleges and universities as have completed the prescribed courses in chemistry and biology therein. (b) Graduates and matriculates of colleges of homœopathy. (c) Graduates and matriculates of colleges of eclectic medicine. (d) Graduates and matriculates of colleges of dentistry requiring two or more courses of lectures before conferring the degree of D. D. S. (e) Graduates and matriculates of colleges of pharmacy. (f) Graduates and matriculates of colleges of veterinary medicine. It is provided, however, that this class of students be required to comply with the provisions of the entrance examination and to prove their fitness to advanced standing by an individual examination upon each branch below the class he or she may desire to enter.

Resolved, That students graduating in 1899 or subsequent classes be required to pursue the study of medicine four years and to have attended four annual courses of lectures of not less than six months' duration each.

Indican in Children's Urine.—Djouritch has made a very exhaustive study regarding the appearance of indican in the urine of infants and children, which is reported in the *Revue mensuelle des maladies de l'enfance*. Although indican exists in normal urine, he believes that it occurs in such small quantities that when detected by ordinary tests its presence must be considered pathological. The diet of children being much less nitrogenous than that of adults, the appearance of this element is even more indicative of disease than it is in older persons. It occurs especially in diseases of the digestive organs, either acute or chronic. It is not, however, confined to these diseases, as it has frequently been found in pneumonia, bronchitis, typhoid fever, and even chorea and diphtheria. In tuberculosis it is almost constantly found. It is so constant in its appearance, in fact, that its presence, unless clearly explained upon other grounds, is a strong indication of tuberculosis. In obscure cases it may prove of material aid in diagnosis. It occurs more especially in those cases of tuberculosis which are accompanied by digestive disturbance, but it is sometimes observed when no such complication exists. Such an occurrence is difficult of explanation. It is probably due to some impairment of the general nutrition.

The American Electro-therapeutic Association will hold its fourth annual meeting in New York on September 25th, 26th, and 27th, at the Academy of Medicine. Members of the medical profession are invited to attend.

Intestinal Approximation.—Brief histories of thirty-two cases of intestinal approximation with the use of the Murphy button appear in the *Medical Record* for June 2d, with the following conclusions by Dr. J. B. Murphy, of Chicago: The more rapidly the operation is performed, the less danger there is from shock. The danger of infection, post-operative paralysis, and adhesions increases with the amount of manipulation and exposure of the intestine. The more uniform and continuous the pressure is at approximation, the greater the assurance of adhesion and the less the liability of infiltration. A mere line of approximation is as good as half an inch. In the last five years mechanical means have produced better results than the suture, in both lateral and end-to-end approximations. End-to-end approximations should always be given the preference, as in them the mortality is much less than in lateral apposition. The more perfect the juxtaposition of the various layers, the less the interposition of fibrous tissue and the more complete the regeneration across the line of union. Assurance against cicatricial contraction results from the juxtaposition of the similar histological layers of the wall of the intestine. The more extensive

the approximation surface, the larger the fibrous deposit and the greater the contraction. The contraction with lateral approximation is greater than with the end-to-end operation. As regards diagnosis, in intestinal obstruction there is no elevation of temperature, while in the early stage of perforative peritonitis there is an increased temperature. Peristalsis is greatly increased in intestinal obstruction, and continues until necrosis or peritonitis occurs, while there is a paralysis of peristalsis over the inflamed area in perforative peritonitis.

An Indian Medical Congress is to be held in Calcutta from the 24th to the 29th of December of this year. The central secretaries, Dr. W. J. Simpson and Dr. D. M. Moir, have issued a circular in which they say: "Though the congress is primarily Indian, the executive committee hope to see a number of their *confrères* from other countries. Apart from the medical work of the congress, which promises to be interesting and instructive, there will be the opportunity of seeing India and visiting its chief cities. There are few more interesting countries historically or archæologically, and the scenery of the Himalayas is among the grandest of the world. The climate during the winter is perfect, the facilities of travel excellent, and two or three months, inclusive of the double voyage, would suffice not only for the work of the congress but for a visit to most of the chief centers of interest. The journey from London to Calcutta occupies about eighteen days *via* Brindisi and Bombay, about a week longer *via* Gibraltar and Malta. The P. & O. S. N. Co. have weekly steamers by both routes, the British India Company fortnightly *via* Gibraltar. The Messageries Maritimes run from Marseilles, the Rubattino from Genoa, and the Austrian Lloyds from Trieste. The Calcutta season is at its height during Christmas week, and the committee expect to be able to present a varied programme of entertainments, while a special committee has been formed to attend to the convenience and comfort of visitors."

The objects of the congress are stated to be to bring together medical men from all parts of the Indian Empire, to discuss medical subjects connected with Indian diseases, and to place on permanent record some of the work which is now lost to science for want of proper publication.

It is proposed that the work of the congress should be divided into the following sections: 1. Medicine and Pathology. 2. Surgery including Ophthalmology. 3. Obstetrics, and Diseases of Women and Children. 4. Public Health. 5. Medico-legal Medicine and Insanity. 6. Pharmacology, especially Indigenous Drugs.

A special committee has been formed to arrange for the accommodation of visitors and to provide for their comfort. The local secretaries of this committee are Surgeon-Captain H. W. Pilgrim, General Hospital, Calcutta; and Dr. Prandhan Bose, M. B., Calcutta Medical School, Calcutta, to whom or to the honorary central secretaries applications should be made for rooms. The price of accommodation in Calcutta may be taken from Rs. 7 to Rs. 14 a day for Europeans, and Rs. 3 to Rs. 5 for Indians. Tickets of membership may be obtained from either the honorary central secretaries in Calcutta or the local secretaries in the different parts of the Indian Empire. An entertainment and reception committee will arrange for visits to places of interest in Calcutta and neighborhood. Members are requested to notify the central secretaries or the local secretaries of their districts of their intention to read papers and the titles of the same, which should reach the central secretaries not later than October 15, 1894. The cost of members' tickets is Rs. 10. Members will be entitled to a copy of the *Transactions* on payment of an additional Rs. 10. Non-members may obtain the *Transactions* of the congress on payment of Rs. 25. Orders for

a copy of the *Transactions* should be registered early. A guarantee fund has been started, and all checks should be sent to the honorary treasurers, Dr. Mohendra Nath Gupta and Dr. Bolye Chunder Sen, Campbell Medical School, Calcutta.

The Great Plague in China.—A terrible pestilence is known to be raging in Canton, Pakhoi, Hong Kong, and other large cities in China. The first outbreak was in Canton, where the sewers were abominably filthy from the prolonged drought, causing thousands of swollen and dying rats to crawl up into the streets. The disease is particularly prevalent in Pakhoi, where, every year, the rats are said to give a like notice of its approach. In Canton sixty thousand people died in one week. The symptoms of the epidemic are nearly the same as those of the great plague which almost depopulated London in 1665. There is a sudden onset of fever, the temperature rising to 105° F. or above. In some cases there is a premonitory malaise or a chill which troubles the patient. There is much cerebral disturbance with headache, accompanied by stupor. In from twelve to twenty-four hours glandular swellings appear in the neck, axillæ, or groins, which rapidly reach a diameter of an inch or more, and are hard and exceedingly painful on pressure. Whether the fever decreases or not, the patient sinks deeper into a comatose condition, and usually dies before forty-eight hours elapse. If six days are reached, the patient may recover. The glandular swellings present no signs of suppuration. Petechiæ appear in a few cases, but there is no regular eruption. There may be epistaxis and vomiting of blood. Purging begins early, and the delirium becomes coma in from three to four hours in severe cases, followed by death and rapid decomposition. Eighty per cent. of the victims in Canton died during the first day of the illness. Apparently nothing can change the filthy customs of the poorer Chinese, and they can not be induced to follow the most elementary sanitary practices. The thorough flushing of the drains and sewers and the isolation of infected persons are advised by the hospital authorities.

Sanitation for Villages and Towns.—The great cost of the complete sanitary systems of large cities almost precludes their use in villages and small towns. To meet the conditions existing where the population is small and the dwellings are far apart, Willis A. Barnes, Esq., suggests in the *Dietetic and Hygienic Gazette* for June the following measures: The chief thing is to provide pure water. Surface drainage is to be prevented by the construction of sewers. The use of privy vaults of any kind should be prevented by law. Sewage may be disinfected at a common reception station. The introduction of an earth-closet system should be compelled by statute, and be under the control of the municipality, the excreta being disposed of at a common disinfection station. Local isolated hospitals for the treatment of all infectious diseases should be established, and removal of patients to such hospitals should be compulsory. The bodies of the dead should be thoroughly disinfected. Manure from private or from public stables should be dumped into cemented tanks above ground, and the contents should be frequently removed under the direction of the local board of health. The law should compel all roads, streets, and alleys to be kept clean, all garbage to be removed, and all refuse waste to be burned. Public and private bathing, public libraries and gymnasiums, literary and musical societies, frequent visitation, and the best of schools are to be encouraged and promoted. The large percentage of persons from rural districts in insane hospitals indicates that the absence of active social and literary life among farm, village, and townspeople produces morbid mental conditions. The alcoholic traffic produces influences which cause insanitation. Ill-health in a community is a good proof of the existence of insanitary conditions.

Lectures and Addresses.

LECTURES ON THE DIAGNOSIS OF ABDOMINAL TUMORS.

BY WILLIAM OSLER, M. D.,
PROFESSOR OF MEDICINE, JOHNS HOPKINS UNIVERSITY.

LECTURE VI.—TUMORS OF THE KIDNEY.*

NOWHERE is the close interdependence of medicine and surgery better illustrated than in the diagnosis and treatment of tumors of the kidney. A very large proportion of the cases come first under the care of the physician, whose province it is to recognize the condition; but to do justice to his patient he should be thoroughly familiar with the advances which have been made in the department of renal surgery. Let me first call your attention to the diagnosis of certain conditions associated with—

I. MOVABLE KIDNEY. (a) *Errors in the Diagnosis of Movable Kidney.*—I have no statistics to offer with reference to the frequency of movable kidney, but throughout the session you have had many opportunities of noting its commonness—so common, indeed, that we are never without examples in the wards. A majority of the cases present no symptoms whatever. Others complain much of dragging pains in the back, with neuralgia, epigastric distress, and general nervousness; many of neurasthenia with dyspepsia; and one often finds, particularly in women who have borne children, the condition to which Glénard has given the name enteroptosis. In a thin person, male or female, who presents the general features of neurasthenia, you will be almost certain to find, on examination, mobility of one or other, or of both the kidneys. Inability to lie comfortably on the left side, and paroxysmal attacks of pain such as I shall describe in a few moments, are less frequent symptoms. It is difficult really to determine how far all these features are dependent on the renal condition. It is quite possible that the pains and uneasy feelings may be due to stretching and tension of the tissues in the neighborhood of the great abdominal nerve plexuses; but one not infrequently meets with cases of the most extreme mobility without any symptoms whatever. It may be that, in persons with a debilitated and bankrupt nervous system, the tension caused by the dragging of a movable kidney may be at once felt, just as many persons find the first indication of physical fagging in subjective sensations of the movement of the heart, of which in health we are not cognizant. The text-books and monographs now contain a full and satisfactory account of the condition, but I wish to call your attention to some less widely recognized features in connection with it.

While in the great majority of all cases movable kidney is quite unmistakable, there are cases in which its recognition is by no means easy. You will remember that in Case V we made a somewhat serious *faux pas*, and thought that an unusually mobile pyloric tumor was a movable kidney.

A more frequent error is the mistaking of it for a dilated gall bladder. I have already alluded to this, and in *Lecture IV* have spoken of the points to be attended to in the diagnosis. Here I may mention a case of a good deal of interest in which this error was made, and the operation for dilated gall bladder performed by Mr. Tait. The patient, a doctor from California, consulted me in 1888 about a lump in the abdomen, the nature of which had puzzled a large number of physicians. It had been present for ten or eleven years, and had appeared first after a somewhat severe attack of sea-sickness. He had suffered a great deal with nervous troubles and dyspepsia, and when I saw him there were signs of dilatation of the stomach. The position, mobility, and general characters made me feel tolerably certain that the tumor was a movable right kidney, and with this opinion the late Dr. Agnew coincided. The diagnosis relieved his mind very much, and he improved, so far as nervous symptoms were concerned. Subsequently he grew worse, and in the spring of 1890 he consulted Mr. Tait, who diagnosticated dilated gall bladder, and made an exploratory incision. The gall bladder was normal, and the kidney, so he stated, was *in situ*. Subsequently the patient came under the care of Dr. C. O. Baker, of Auburn, N. Y., who found the tumor very evident, made a diagnosis of floating kidney, and performed nephrorrhaphy, with great relief to the patient. The case is reported in the *Medical Record* for May 14, 1892. The patient died in September of this year (1893) of empyema, and in the post-mortem notes, which were very kindly sent to me, the statement about the kidney is: "Right organ in normal position, held by firm union; nephrorrhaphy had been performed for floating kidney." There is no mention made of enlargement of the gall bladder.

With very pendulous and lax abdominal walls and an unusually mobile right kidney there may be at first difficulty in separating clearly the right lobe of the liver and the kidney. In the following case I was at first in doubt:

CASE LVII. *Movable Kidney, simulating a Local Growth in the Right Flank; Right Lobe of Liver mistaken for Right Kidney.*—Jane E. G., aged fifty-two years, seen with Dr. Hewetson, in the Medical Dispensary, September 25, 1892, complaining of cough and pains in the back and side and headache. She is pale and somewhat emaciated, and looks ill. Lips and mucous membranes are, however, of a good red color. She has borne nine children. She has lost in weight during the past six months. There are no abnormal physical signs in the thorax. In the examination of the abdomen there was detected a solid, mobile tumor in the right side, which was not thought to be the kidney, as it was believed that this organ could be also felt in the flank. On the examination, I found a well-marked, readily movable tumor, just at the right of the navel, and, on bimanual palpation, the right kidney could, I thought, also be felt. The left kidney was readily palpable. As I was unable to satisfy myself as to the nature of the mass, I asked to see her again on the 28th.

Examination.—Patient is thin; not cachectic. The abdomen is pendulous, and the walls are very lax. On the right side, a little above the line drawn from the anterior superior spine to the navel, a movable tumor can be felt, somewhat rounded in shape, about the size of an orange, not distinctly reniform, but

* Concluding lecture of the course. Delivered Dec. 26, 1893.

with a slight depression on the right side. It can be pushed up, but not entirely, beneath the ribs, and it does not slip into position like a floating kidney. Below it can be pushed down so as partially to pass the line joining the anterior superior spines. To the left it can be pushed over to the middle line. It is not painful. Examination of the right renal region showed a depression below the ribs behind, but, on bimanual palpation, the flank appeared to be filled with a solid mass. Careful examination, however, determined that this was not, as suspected on the first examination, the kidney, but in reality part of the right lobe of the liver, the ligaments of which were much relaxed. An edge could be distinctly felt; to the right the lobe was ill-defined, and it could not be made to slip up in the way so characteristic of movable kidney. On the left side the kidney was readily palpable, and, on deep inspiration, depressed so much that the fingers could almost be inserted above the upper border.

I have no doubt that in this case the tumor in the right side of the abdomen was the kidney, and that the mass felt in the right flank represented in reality the right lobe of the liver.

Among the scores of cases of movable kidney which have come under my observation I do not remember one in which the condition was exactly as presented in this patient. At the first examination I felt sure that a kidney was palpable in the renal region, but the more careful subsequent examination convinced me that I had been in error.

I have already called your attention to the elongation of the edge of the right lobe of the liver as a cause of an anomalous tumor mass in the right flank, and mentioned the case in which laparotomy was performed by Dr. Kelly for an obscure tumor, which proved to be the thinned-out edge of the right lobe.

In the following case I erred in thinking that a tumor in the right side of the abdomen was a dislocated and fixed kidney:

CASE LVIII. Tumor in Right Side supposed to be a Dislocated and Fixed Kidney; Gradual Disappearance.—Mrs. H. O., seen December 9, 1892, with Dr. Arthur Williams, of Elkridge, Md.

I saw this patient first in October, 1891, when she consulted me for pains in the abdomen. She had always been in good health as a girl; had been married twelve years; had four children, the youngest three years of age. Six months ago she began to have pain in the abdomen, chiefly in the epigastric region, and radiating to the back and to the chest. She has never had any vomiting, nor is the pain connected with the taking of food. Within this period of time she has lost about sixteen pounds in weight. A few months ago she noticed a lump in the abdomen, which has caused her great uneasiness, and it was for the purpose of determining the nature of this that Dr. Williams advised a consultation.

Examination.—She was a thin, dark-complexioned woman, neither anæmic nor cachectic. The abdomen was distended, uniform, with normal respiratory movements. On palpation not tender, not sensitive, and nothing was felt except at the boundary of the epigastric and umbilical regions on the right side, where an elongated tumor occupied exactly the extension of the parasternal line. The lower end was rounded and smooth, and reached a little below the level of the navel. The upper end was not palpable. To the left the mass did not extend beyond the middle line. The right margin was rounded and well-defined; the left a little depressed and irregular. It was not

very movable, but by using both hands it could be shifted slightly from side to side. The surface was smooth; it was a little sensitive to pressure, and felt very resistant and solid. The fingers could be placed directly beneath the lower end, but it did not appear to have an ovoid or globular outline. No gas was felt to pass through it after repeated examinations. The stomach was not dilated. The kidney could not be felt on either side. The urine was normal and the bowels were regular. She had no attacks of colic, and the pains which she described were not specially suggestive of biliary colic. I noted at the time that the case was somewhat puzzling. The tumor had the situation rather of a pyloric growth, though its long axis was vertical, but there had been no dyspepsia, and there was no dilatation of the stomach. The situation was somewhat suggestive of the gall bladder, though it seemed to have more resistance than a tumor caused by dilatation of this organ. It had an outline very suggestive of renal tumor, and I was rather inclined to regard it as a dislocated and fixed kidney. I gave the patient every encouragement and assured her that it was not a malignant growth. At my request the patient returned on December 9, 1892. To my astonishment the tumor had disappeared entirely; not a trace of it could be felt. Examination of the abdomen was absolutely negative. The right kidney was not palpable; the gall bladder could not be felt; the edge of the liver could be just touched during deep inspiration. The patient stated that she had improved very much. The pains had diminished, and she now had very little distress. She had gained in weight, and was on the whole very much better. Here, in all probability, I had mistaken a dilated gall bladder for a movable kidney. The tumor was scarcely large enough, and had not the situation of intermittent hydronephrosis, the only other one which could disappear in this way.

(b) *Dietl's Crises in Movable Kidney.*—Remarkable attacks of pain occur in connection with movable kidney, to which attention was first called by Dietl. A knowledge of the existence of these renal crises, as they have been termed, is very important, and as they form a very striking feature in certain cases of movable kidney, I propose to call your attention to them at some length. The text-books, with the exception of the last edition of Flint's, have been curiously silent regarding this symptom-group. In Dietl's paper, which appeared in the *Wiener medicinische Wochenschrift*, 1864, nine cases of movable kidney are reported, all of which had pains in the side and back. In four there were also attacks of nausea and vomiting, with great pain, swelling, and tenderness of the affected kidney. These were liable to recur, particularly on exertion. Dietl was doubtful about the pathology of the condition, but from the title of the paper, *Wandernde Nieren und deren Einklemmung*, it is evident that he regarded it as a strangulation caused probably by a twist in the vessels.

The case which first called my attention to the condition was a patient of the late Dr. Palmer Howard's, of Montreal.

A lady, aged about forty years, stout and well nourished, began some months after her third pregnancy to have violent attacks of pain in the abdomen, in which she became nauseated, often vomited, and suffered so intensely that hypodermics of morphine alone gave relief. She was seen by the late Dr. George W. Campbell, who discovered a lump in the right side

of the abdomen. The attacks recurred with great severity throughout the winter of 1879-'80. The patient lost in weight and the diagnosis of a new growth was made. In the spring of 1880 she consulted in New York the late Dr. Austin Flint, who agreed with Dr. Howard and Dr. Campbell as to the very serious nature of the case. Throughout the year the attacks recurred, and she lost in weight from one hundred and seventy to one hundred and twenty pounds. In the spring of 1881 she again went to New York and consulted Flint and Van Buren. As she was at this time very much thinner, a more satisfactory examination of the abdomen could be made. Van Buren at once suggested that the tumor was a movable kidney, with which he stated that he had frequently met with paroxysmal attacks of severe pain, particularly in gouty persons. He advised a very strict diet. The relief of mind was naturally very great, and the patient began at once to improve, gaining rapidly in weight. The paroxysms reduced in frequency, and for years she remained well, having at intervals, particularly if she committed any indiscretion in diet, recurrences of the severe pain.

The following cases have been recently under observation:

CASE LIX. *Enteroptosis; Movable Right Kidney; Severe Renal Crises.*—Susan S., aged forty-six years, admitted January 13, 1893, complaining of agonizing pain in the abdomen and back, and a lump in the right side. She was married at twenty-three; has had nine children, no miscarriages; menopause two years ago. Of late years she has been very nervous and is often irritable and depressed. At the time of the menopause she had pains in the back, and once the head was drawn to one side for a few days. Until two years ago the pains were of a dull aching character, but at this time she noticed a lump in the right side, and the pains became much more intense. The attacks now come on without warning and are so severe that she becomes helpless. They last for several hours, and though she never loses consciousness, they are so agonizing that for a time she can not speak. On two or three occasions she has fallen down. She gets cold, sweats a good deal, feels nauseated, but has never vomited. The pain is chiefly in the right side, and the lump becomes, she says, sensitive and larger. The attacks have recurred every two or three months. The last one was four weeks ago. On several occasions after very severe attacks the urine has been dark-colored. She has never had jaundice. The patient is a well-nourished woman; lips and mucous membranes of good color; temperature normal; examination of heart and lungs negative.

The abdominal walls are greatly relaxed, and the much-scarred skin can be grasped in large folds. On the left side the kidney can be felt readily on deep inspiration. On the right side, extending outward to within 3.5 centimetres of the middle line, and downward at least 8.5 centimetres from the costal margin, is a smooth, rounded mass, very freely movable to the right. It is superficial and seems to emerge directly beneath the ribs. It descends with inspiration, and when the patient turns on the left side, falls far over beyond the middle line, and can be lifted with the fingers beneath it. It is smooth on the surface, and as stated seems to emerge directly from beneath the costal margin. To the left it can be felt beyond the middle line. The lower edge is rounded, but the fingers can not be placed beneath it. It is evident that this mass is a depressed and somewhat freely movable liver. On bimanual palpation, deep pressure opposite the point of the tenth rib, the right kidney can be readily felt behind and separate from the liver, and on deep inspiration it moves down and can be readily grasped.

We had a good deal of discussion about the nature of this large flat mass in the right flank. It felt very superficial, smooth, and we thought at first it might be an enlarged and movable kidney, but repeated examination seemed to indicate that it was the liver, somewhat movable and tilted forward, owing to the relaxed condition of the abdominal wall. The following note was made on the 19th: When the patient lies on the left side the hepatic flatness does not begin in the anterior axillary line until the ninth rib; when on her back it begins at the eighth. In the nipple line, when she is on her back, the flatness begins at the seventh rib, and apparently falls an inch lower when she is on her left side. The border of the mass can be felt more distinctly in the nipple line, and suggests, taking into consideration the fact that one feels below it the kidney sliding backward, while near the umbilicus there is a sharp border, the existence both of a movable kidney and a movable liver.

The patient remained in hospital for nearly four weeks and gained in weight. She was greatly relieved by our statement as to the nature of her case. She had no attack of severe pain while under observation. The character of the attacks suggests the renal crises common in floating kidney.

The following case is, I believe, a very typical instance of Dietl's crises, and is interesting also from the protracted course and the intensity of the recurrences:

CASE LX. *Movable Kidney; Renal Crises at Intervals for Seven Years.*—Dr. X., aged forty-three years, seen October 18, 1893, complaining of attacks of agonizing pains in the abdomen, which have recurred on and off for seven years. The patient has been a very healthy man, of good habits, and has for twenty years been engaged in a very laborious country practice. At the time of the onset there was a great deal of typhoid fever in his district, the roads were very bad, and for seven weeks he was in the saddle constantly. The first attack, which was of a very agonizing character, came on when he was very much fatigued, and was so severe that he nearly fainted and required morphine. He had no vomiting and did not pass any blood in the urine. Since that time the attacks have recurred, sometimes two or three in a week, sometimes only one in six or eight weeks. He has never vomited in them, though sometimes the intensity of the pain makes him nauseated. The bowels are regular and he has never had jaundice. He never can tell exactly when the attack will come on. It usually begins abruptly, and the intensity of the pain is such that he often has to take chloroform. The attacks last from a few hours to the greater part of a day, and, in passing away, leave him a little exhausted and with a feeling of soreness and aching. The pain is most intense in the right flank and extends toward the navel and to the spine. He does not think that any tumor develops at the time, but the muscles of the abdomen are tightly contracted and the right flank is sensitive. He has noticed in very many of the attacks that he micturates freely, and the amount of urine is increased as the attacks pass off. There never has been any change in the character of the urine.

The patient is a moderately well built man; looks healthy and strong; tongue is clean. The abdomen is soft, flat; no sensitiveness over the stomach; the pylorus is not palpable; the edge of the liver can be felt just below the costal margin; it is not sensitive. The spleen can not be felt.

The right kidney is readily palpable, and, when he draws a deep breath, comes down so low that the fingers can easily be slipped above it and fix it below the level of the tenth rib. It is a little sensitive on pressure, but is not apparently enlarged. When he turns on the left side the kidney falls forward and

can be also readily felt just below the margin of the liver. The left kidney is not palpable.

These renal crises constitute perhaps the most distressing symptoms of movable kidney, and they are, I think, very much more common than we are led to suppose. The knowledge of their existence is important, as the attack may be so severe as to simulate peritonitis. The cause of the symptoms is not at all clear. The terms which have been used, *Einklemmung* by the Germans, and *étranglement* by the French, are based upon the view originally expressed by Dietl, that it was a condition of strangulation or extreme engorgement caused by a twist in the vessels of the floating kidney. Dietl thought that about the moving organ there was a local peritonitis. The explanation which passes current at present is more reasonable, namely, that the condition is due to a kink or twist in the upper part of the ureter, with retention of the urine in the pelvis and calices, and a production of a transient hydronephrosis, the severe, agonizing pain being caused by the distention of the tissues.

II. INTERMITTENT HYDRONEPHROSIS.—With the exception of a remarkable case of the rare congenital form, upon which my colleague Halsted operated in this hospital three years ago, I had never seen—to recognize—a case of intermittent hydronephrosis. During the present session three examples have come under my notice. Let me first read to you the notes of the cases:

CASE LXI. *Intermittent Development of Large Tumor on the Left Side.*—Mrs. F., aged forty-three years, seen with Dr. Finney, September 9, 1893, complaining of trouble in the left side. She has been a healthy woman; has had four children; never has had any trouble after her confinements, and she does not think that she was unusually large during her pregnancies. She has, on the whole, enjoyed very good health. In April last she stumbled over a slop jar and wrenched her back, but she did not feel it very much at the time. Early in May she had the first severe attack of pain in the left side, which Dr. Archer, who attended her, thought was renal colic. There were three paroxysms—at 3, 6, and 9 P. M. They were evidently very severe, as she was bent over with the pain and had severe vomiting. The urine was not bloody, and in a few days she was herself again, but one evening she was surprised to feel a "lump" in the left side, which has been present at intervals ever since. It has not been especially painful, but is a little uncomfortable, and associated with a feeling of distention and uneasiness, particularly when she is lying down. It is not more painful after eating, nor has diet any special influence. She has not lost in weight. She is quite positive that the lump in the side appears and disappears; thus, she says, she could not feel it on the 5th and 6th of this month, and she thinks that throughout the greater part of July it was not present. Its onset is always ushered in with pain in the left side, but the attacks have never been so severe as those which she had in May. She has noticed on several occasions that she has voided large quantities of urine, as much as five pints between 8 P. M. and six o'clock the next morning, usually of a very pale color. She has not had her attention drawn to any coincidence between the disappearance of the tumor and the large amount of urine.

Her bowels are regular, appetite good, but she has been sleeping badly of late, owing in part to the worry about the tumor.

Present Condition.—Well-nourished, healthy-looking woman of medium height. The abdomen looks natural; no special prominence. When she turns a little on the right side there can then be seen a projection in the left flank just above the ilium, and between the tenth rib and the anterior spine there is felt a prominent solid mass, which above lies close beneath the ribs, while anteriorly it feels superficial. It can be readily grasped between the hands and moved to and fro. When she draws a deep breath it does not give one the impression of coming out from beneath the ribs and is not much depressed. No sharp edge can be felt, but it is everywhere rounded in outline.

Percussion in the splenic region is clear, and beneath the level of the eighth rib there is a flat tympany in midaxillary line. As she turns on the right side the mass comes forward and produces a bulging beneath the skin. It is tolerably firm and elastic, but fluctuation can not be obtained.

The edge of the spleen is not palpable; the liver dullness is not increased; the edge can not be felt. The right kidney is just palpable on deep inspiration. Examination of the thoracic viscera is negative.

The patient was requested to make a careful estimation of the urine each day, and note with reference to the presence or absence of the tumor.

September 11th.—Dr. Finney reports that last night on examining the abdomen no trace of the tumor could be felt.

She was ordered a bandage with a carefully adapted pad, and asked to estimate the amount of urine, which she only did, however, for about a week. On the 11th the amount of urine was five pints and a fifth; on the 12th, three pints and a half; on the 13th, four pints and a half; on the 14th, four pints and a half; on the 15th, three pints and a half; on the 16th, two pints and a half. From 6 A. M. to 6 P. M. on the 16th she felt tired and weak, and had uncomfortable sensations, and she passed at this time not quite a pint. At 11 P. M. on the 16th the tumor mass was quite evident, projecting prominently between the ribs and the hip. It was evident throughout the 17th, but she felt very much better toward the afternoon, but was inclined to cry and fret, and was a good deal distressed at the recurrence of the mass. On the 18th it had disappeared entirely. The sample of urine examined was clear, specific gravity 1.015, and contained neither albumin nor tube casts.

Additional Note.—I saw this patient last on January 8th. She had been very nervous and uneasy about herself. The tumor was present, though not so large as when first seen. Its appearance and disappearance have been repeatedly verified by Dr. Finney.

CASE LXII. *Attacks of Colic; Tumor in the Left Renal Region which Appears and Disappears.*—Mrs. A., aged twenty-seven years, bipara, had consulted me on two or three occasions for dyspepsia. On October 2d she came complaining of a lump in the left side, which had been present on and off all the summer, and which sometimes gave her a great deal of pain. She first noticed it in May, following an attack of colic of great intensity. A few days subsequently she noticed that there was a

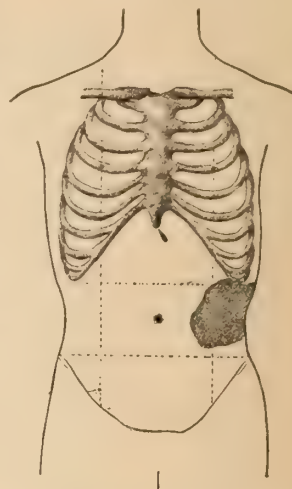


FIG. 39.—Illustrating the position of the tumor in Case LXI.

lump in the left side, which, however, gradually went away. Since then it has appeared and disappeared five or six times, at intervals of a week or two, usually developing with an attack of pain, which gradually subsides as the tumor becomes apparent. No special uneasiness attends its disappearance, and she has not noticed any special increase in the amount of urine.

Her general condition has kept very good; she has gained in weight, and the old dyspeptic symptoms for which I saw her last year have almost entirely disappeared.

She is a medium-sized, fairly well nourished woman; color of lips good. Pulse 80; no fever.

The abdomen looks natural; skin not very much scarred; only a moderate amount of panniculus. A prominence can be seen in the left flank. On quiet breathing, below the left costal border, in the position of the edge of an enlarged spleen, there is a rounded, superficial mass, which descends with inspiration, reaching fully three fingers' breadth from the margin. It

passes deeply in the region of the kidney, and the fingers can be inserted between it and the costal margin. Pressure from behind in the left flank pushes the mass forward so as to elevate the skin to the left of the navel. When very large she says it reaches quite as far as the middle line. The lower end is rounded, but without any marked prominence; it is movable when grasped between the hands. The splenic dullness can not be obtained, nor is an edge to be felt. The percussion over the tumor mass is flat. When lying on the left side it falls down somewhat, and the fingers can be passed freely beneath it. There is no uterine

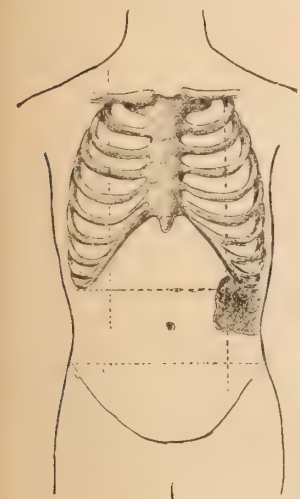


FIG. 40.—Position of the tumor in Case LXII.

or ovarian trouble, and the tumor mass does not appear to pass toward the pelvis. The liver is not enlarged; there is no dilatation of the stomach.

October 7th.—The mass is stated to have been absent for three days.

Examination.—Fingers can be passed deeply at the left costal margin without meeting anything. The kidney is readily palpable and descends with inspiration. She passed three pints and three quarters of urine during the three days after the last examination; then on Thursday and Friday the lump had disappeared, and there were three pints and a quarter, so that the difference is not very great.

The attack in which I first saw the patient came on Sunday, October 1st, with moderately severe pain, and during the night the "lump" was felt. She states that it was not so prominent as it has frequently been. Twice the mass has extended as far as the middle line.

The urine was examined repeatedly. It was light in color; specific gravity never above 1.020, acid in reaction, and contained no albumin or abnormal ingredients. There were no differences between the urine when the tumor was present and that passed during the time of disappearance of the mass.

Throughout November the patient was very well. A carefully adapted pad and bandage have given her great relief, and she has noticed the tumor only once. She has been in Philadelphia staying with friends. Throughout the week ending December 16th she had had a great deal of worry and trouble with illness in the family, and had been on her feet a great

deal. On the 15th she was tired out and went to bed. Stayed in bed all day and had some pain and distress on the left side and noticed the reappearance of the tumor.

December 16th.—To-day, at 4.30 P. M., the tumor mass is present, though not so prominent as on the former examination. It does not reach beyond the parasternal line; is not specially sensitive; easily moved on bimanual palpation. On deep inspiration the fingers can be placed well above it.

On questioning the patient with reference to the onset of the attacks, she states that even when a young girl she remembers to have had pain in the left side after running or after dancing for a long time, but she never noticed the presence of the lump until May of this year. She has given up measuring the daily amount of urine, but she is certain that there is no striking and sudden increase in the amount as the tumor disappears.

(To be concluded.)

Original Communications.

SCOPOLAMINE:

ITS VALUE IN OPHTHALMIC PRACTICE.

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THE attention of the medical profession of this country has recently been drawn by Dr. Haskett Derby, of Boston, and Dr. Pooley, of New York, to the value of scopolamine as a mydriatic. The use of this drug in America seems to have been very limited, and comparatively little information can be obtained regarding its exact properties and action and its worth compared with the standard mydriatics, atropine and homatropine.

Scopolamine is obtained from the roots of *Scopolia atropoides*, and is isomeric with atropine, hyoscyne, duboisine, daturine, and the other members of the tropeine series. By some authorities it is considered to be identical, not only in formula but in physiological action, with hyoscyne, but on this point conclusive proof is lacking.

It is used in aqueous solutions, which undergo decomposition much less readily than similar solutions of atropine and homatropine.

Koeber's experiments have shown that "this substance is opposed in general physiological action to atropine; it does not stimulate the cerebral cortex like atropine, but paralyzes it."

According to Dr. Rahlmann (*Munch. med. Wochenschr.*) "scopolamine excels as a mydriatic and antiphlogistic all other tropeines in use. It is similar to hyoscyne in strength of mydriatic action, without sharing its disadvantages; it has no untoward effects, does not disturb the appetite, nor does it cause, in normal doses, dryness of the throat, nervous restlessness, reddening of the face, or frequent pulse, as in the case of atropine.

"The antiphlogistic and anodyne effect of scopolamine is not second to that of atropine, a steady diminution of the hypopion being observed in five cases after its application. It does not affect intraocular pressure, and will therefore,

in contrast to atropine, be readily borne where there is a pathological increase of the same.

"Scopolamine hydrobromate is used in one fifth and one tenth per cent. solutions, which are said to correspond with one half and one per cent. atropine solutions."

In February last Dr. D. B. St. John Roosa introduced the use of scopolamine into the Manhattan Eye and Ear Hospital in the treatment of his clinic and indoor patients, and since that time it has had a fairly general trial throughout the hospital, and its value has been pretty accurately determined in pathological and ametropic conditions, particularly the latter. Careful observations have been made in about twenty-five refraction cases, with the view of ascertaining the rapidity and thoroughness with which the accommodation can be paralyzed and the pupil dilated by scopolamine, the best method of using the drug, and the minimum strength of solution which will produce satisfactory results, physiological and toxic effects, and the duration of mydriasis and cycloplegia.

In pathological cases reliable conclusions as to the beneficial or deleterious effects of scopolamine have been difficult to arrive at, owing to the fact that it is no easy matter to decide whether an abatement or an increase in the severity of an ocular disease (where only a limited number of cases can be utilized for experimentation) is due to the use of a certain drug.

The strength of the solutions employed in both pathological and refraction cases was usually one fifth or less frequently one tenth per cent., one or two drops being instilled into each eye until four or five instillations had been made. Maximum dilatation of the pupils was produced in all refraction cases in from ten to twenty-five minutes.

The amplitude of accommodation, as indicated by the number and distance at which Jaeger test type could be read by the patient, showed a decrease directly proportionate to the rapidity with which the pupil dilated; at the end of twenty or thirty minutes such spherical glasses were placed before the patient's eyes as would bring the near point to about twelve inches, and in nearly all the cases examined, where the perceptive functions of the eye were not at fault, the distance on each side of the point of focus at which Jaeger No. 1 could be read was from one to two inches—in other words, about the same range that we have found to be present in aphakia, and in eyes that have been fully atropinized. In the majority of patients the effect of scopolamine on the heart was manifested within from five to ten minutes by a gradual diminution in the rate of the pulse, which was lessened in three cases as much as thirty to the minute, and was often characterized by more or less softness and compressibility. In a few cases the pulse rate was increased or became irregular in rhythm. The distant vision, which was recorded every five minutes, showed the usual diminution, the amount depending upon the variety of ametropia, the strength of the solution, and the frequency with which it was instilled. In the refraction cases toxic symptoms were induced eight times, mostly at first, as no attempt was made, by everting the puncta or pressing upon the nasal ducts, to prevent

the solution from running into the nose; later on these precautions were taken, thus accounting for the infrequency of poisonous symptoms in the last fifteen cases. These symptoms resemble very closely those produced by atropine, dryness of the throat being usually the first indication of toxic effect; this came on in from fifteen minutes to an hour and lasted from four to thirty-six hours. Following this was observed marked muscular weakness, with unsteady, staggering gait and great dizziness; these symptoms manifested themselves within an hour, the duration being from twelve to twenty-four hours. Loss of appetite, with considerable nausea, lasting a day, was observed in two cases. Some patients became very restless, and others, the majority, exhibited the opposite condition; in three cases great drowsiness came on within an hour; in one case the primary effect of the drug was exhilaration, followed in an hour by depression, the patient becoming very sleepy and heavy. The taste of the drug was often complained of and was described as being "nasty and bitter." Flushing of the face was observed only twice.

In cases of iritis, kerato-iritis, hypopion, episcleritis, etc., where scopolamine was used, its effects were very satisfactory, but it seemed to possess no advantage over atropine. In a patient who had always been very susceptible to the influence of atropine the instillation of one drop of the one fifth per cent. solution of scopolamine hydrobromate was sufficient to produce considerable flushing of the face. We have been unable to make any observation which would support the claims made by Rahlmann that scopolamine will not increase tension. For purposes of examination or operation the drug has been found specially useful, owing to the rapidity of mydriatic action, one or two drops of the one fifth or one tenth per cent. solution being sufficient to fully dilate the pupil in from ten to twenty-five minutes. The average duration of cycloplegic and mydriatic effect we have found to be from five to eight days. Comparatively few tests with the weaker solutions have been made, but the results so far obtained from the use of a one tenth per cent. solution have been satisfactory. In the case of a little girl with spasm of accommodation, seven instillations in sixty hours completely paralyzed the ciliary muscle, the effect lasting for six days.

In all the refraction cases examined the results have been practically the same, so far as rapidity and thoroughness of action and duration of effect are concerned. A detailed account of two or three cases will therefore be sufficient to indicate the advantages or disadvantages which, in our experience, the drug possesses.

CASE I.—Mrs. G., aged thirty-five years, examined February 25, 1894. Complains of inability to do near work for any length of time, has headache more or less constantly, and eyes have of late felt sore and tired; no external ocular disease.

V., O. D. $\frac{2}{3}$; $\frac{2}{3}$ w. +1.0 D. s. $\bigcirc$ +1 D. cyl. ax. 90° .

V., O. S. $\frac{2}{3}$; $\frac{2}{3}$ w. +1.0 D. s. $\bigcirc$ +0.50 D. cyl. ax. 90° .

Javal, O. D. 1.5 D. ax. 90° , 180° W. R. O. S. 1 D. ax. 90° , 180° W. R.

Jaeger No. 2 at six inches.

Ophthalmoscope, O. D. $\frac{+5}{-}$ +4. O. S. $\frac{+4}{-}$ +3.

Fundi normal, refracting media clear, some spasm of ciliary muscle. Patient was tested three weeks ago under atropine, result being—

V., O. D. $\frac{20}{60}$; $\frac{20}{60}$ w. +3 D. s. $\bigcirc$ +1.5 D. cyl. ax. 90°.

V., O. S. $\frac{20}{60}$; $\frac{20}{60}$ w. +3.5 D. s. $\bigcirc$ +0.75 D. cyl. ax. 90°.

Sol. scopolamine hydrobromate one fifth per cent. instilled, detailed in the following table.

Patient complains of a little dizziness w. +5 D., reads Jaeger No. 2 at eleven to fourteen inches.

Scopolamine used as in former case, with the difference that the nasal ducts were compressed during and for a few minutes after each instillation of the drug.

With +10 D. before each eye Jaeger No. 1 is read from six and a half to eight inches.

Ophthalmoscope, +8 D. each. No blurring.

Retinoscopy, O. D. and O. S. $\frac{+7}{-}$ +7.

Time.	Instillation.	Pupils.		Accommodation.	Vision.	
0 min.	Gtt. ij in each eye.	O. D. 4.0 mm.	O. S. 4.0 mm.	Jaeger No. 2 at 6 inches.	O. D. $\frac{20}{60}$	O. S. $\frac{20}{60}$
5 "	" "	O. D. 4.0 mm.	O. S. 4.0 mm.	" " 4 at 8 "	O. D. $\frac{20}{60}$	O. S. $\frac{20}{60}$
10 "	" "	O. D. 5.5 mm.	O. S. 6.5 mm.	" " 10 at 12 "	O. D. $\frac{20}{60}$	O. S. $\frac{20}{60}$
15 "	" "	O. D. 6.5 mm.	O. S. 7.0 mm.	" " 13 at 12 "	O. D. $\frac{20}{60}$	O. S. $\frac{20}{60}$
20 "	" "	O. D. 7.5 mm.	O. S. 7.5 mm.	.....	O. D. $\frac{20}{60}$	O. S. $\frac{20}{60}$

25 min.—Ophthalmoscope +4 D., each spasmodic action of ciliary muscle has ceased.

Retinoscopy, O. D. $\frac{+4}{-}$ +5. O. S. $\frac{+3.5}{-}$ +4.

30 min.—V., O. D. $\frac{20}{60}$; $\frac{20}{60}$ w. +3.5 D. s. $\bigcirc$ +1 D. cyl. ax. 90°.

V., O. S. $\frac{20}{60}$; $\frac{20}{60}$ w. +3.5 D. s. $\bigcirc$ +0.75 D. cyl. ax. 90°.

Reads Jaeger No. 1 from nine to eleven inches w. +4 D. added to above correction in each eye.

35 min.—Patient complains of great dizziness, muscular weakness, dryness of the throat, and headache; is unable to walk straight, and appears to be very restless.

February 21st.—Patient returned to hospital to-day stating that above-mentioned symptoms lasted for twelve hours, and that, in addition, she had experienced considerable nausea and impairment of appetite.

22d.—With same correction as on February 20th, range for Jaeger No. 1 is nine to eleven inches; pupils widely dilated. Toxic symptoms have subsided and patient feels perfectly well.

28th.—Pupils four millimetres each.

O. D. w. +3 D. s. $\bigcirc$ +1 D. cyl. ax. 90°.

O. S. w. +3.5 D. s. $\bigcirc$ +0.50 D. cyl. ax. 90°.

Patient reads Jaeger No. 1 at ten inches without correction. Distant V., O. D. = $\frac{20}{60}$, O. S. $\frac{20}{60}$; with correction = $\frac{20}{60}$ both.

When last seen patient was wearing the above correction constantly, and she states that the glasses have completely relieved her asthenopic symptoms.

This case demonstrates how readily toxic effects can be produced, and would disprove the statements made by the advocates of the use of scopolamine that it does not cause nervous restlessness, dryness of the throat, or disturbance of appetite.

CASE II.—John M., aged ten years, has ten degrees of alternating convergent strabismus of two years' duration.

V., O. D. $\frac{20}{40}$; $\frac{20}{40}$ w. +2 D. s. $\bigcirc$ +0.50 D. cyl. ax. 90°.

V., O. S. $\frac{20}{40}$; $\frac{20}{40}$ w. +3.5 D. s. $\bigcirc$ +0.50 D. cyl. ax. 90°.

Jaeger No. 1, six to thirteen inches.

Javal, O. D. and O. S. 1 D. ax. 90°, 180° W. R.

Ophthalmoscope, O. D. +3 D.; O. S. +6 D. More or less spasm of ciliary muscle renders ophthalmoscopic estimation of refraction inaccurate.

V., O. D. $\frac{20}{60}$; $\frac{20}{60}$ w. +7 D. s

V., O. S. $\frac{20}{60}$; $\frac{20}{60}$ w. +7 D. s.

Accepts no cylinder. Visual axes parallel. No toxic symptoms induced. The subsequent behavior of the ciliary muscle and iris was not determined, as patient could not return for examination.

This case illustrates the rapidity and thoroughness with which paralysis of the accommodation can be produced by scopolamine, and shows that the danger of toxic effect is reduced to a minimum by taking the precautions mentioned above.

CASE III shows in a typical manner the effect of the drug upon the pulse, which before the first instillation was 92; five minutes after the first instillation was 87; five minutes after the second, 80; five minutes after the third, 73; five minutes after the fourth, 69.

The pulse was regular throughout, but became soft and compressible within ten minutes after the drug had been used.

Had it been possible to compare the action of other mydriatics on patients upon whom the scopolamine had been tried, the deductions might have been more absolutely reliable; still, I think the observations so far made justify us in coming to the following conclusions:

1. That the toxic effect of scopolamine used in one tenth and one fifth per cent. solutions are easily produced, but can readily be avoided if the lids be everted or the nasal ducts compressed at the time of instillation.

2. That in diseased conditions of the eye scopolamine is quite as useful a drug as atropine.

3. That in refraction work complete and thorough paralysis of accommodation with the maximum of mydriasis can be produced in from twenty minutes to half an hour, where the drug is used *coup sur coup*, and that the duration of its effect is from five to eight days.

4. That its greatest value lies in the rapidity of its action, which renders it specially useful for purposes of examination in refraction cases and in diseased conditions of the interior of the eye.

Time.	Instillation.	Pupils.		Accommodation.	Vision.	
0 min.	Gtt. ij in each eye.	O. D. 4.5 mm.	O. S. 4.5 mm.	Jaeger No. 1 at 6 inches to 13 inches.	O. D. $\frac{20}{40}$	O. S. $\frac{20}{40}$
5 "	" "	O. D. 5.5 mm.	O. S. 5.5 mm.	" " 1 at 8 " to 15 "	O. D. $\frac{20}{40}$	O. S. $\frac{20}{40}$
10 "	" "	O. D. 5.5 mm.	O. S. 5.5 mm.	" " 1 at 15 " to 18 "	O. D. $\frac{20}{40}$	O. S. $\frac{20}{40}$
15 "	" "	O. D. 6.5 mm.	O. S. 6.5 mm.	" " 13 at 20 "	O. D. $\frac{20}{40}$	O. S. $\frac{20}{40}$
20 "	" "	O. D. 7.0 mm.	O. S. 7.0 mm.	" " 13 at 20 "	O. D. $\frac{20}{40}$	O. S. $\frac{20}{40}$
25 "	" "	O. D. 7.0 mm.	O. S. 7.0 mm.	" " 14 at 20 "	O. D. $\frac{20}{40}$	O. S. $\frac{20}{40}$

THE TREATMENT OF DELIRIUM TREMENS DURING AN ALCOHOLIC SERVICE IN BELLEVUE HOSPITAL.

By RUSSELL BELLAMY, M. D.,
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On the 15th of last August, in the routine of service, the alcoholic wards of Bellevue Hospital came under my care. During my service nearly five hundred patients were admitted. In this service the highest mortality has always been in those cases suffering with the acute form of delirium tremens, experience having shown that if the delirium continues for any length of time, the patient usually dies; serous effusion occurring on the surface of the brain, as is shown by autopsy. Believing that the best results would be obtained if the delirium could be quickly controlled and natural sleep induced, an extreme hypnotic and feeding plan was adopted, rather than the popular feeding, profound hypnotic, or the alcoholic stimulant.

Having determined to use hypnotics, and while experiencing some difficulty in deciding between the dangerous Magendie solution, the rapid but uncertain hyoscyne hydrobromate, the powerful depressant chloral, and the almost inert bromides or their combinations, my attention was called to a new hypnotic—trional, or diethylsulphonmethylethylmethane.

Trional, which has been used extensively in Germany, is described by the chemists of that country as a white powder consisting of shining tablets having a slightly bitter taste, of a melting point of 78° C., which dissolves in three hundred and twenty parts of water at ordinary temperatures.

In looking up the literature of this new phenol derivative it was found that it had been very effective in neurasthenic insomnia, the insomnia of mental disease, and in hysteria, but no record of its use in delirium tremens appears. Reasoning from analogy, I determined to use it in my treatment of this disease, and through the kindness of one of the largest importers was enabled to experiment in twenty-nine cases of marked alcoholic excitement, the patients being so acutely delirious that forcible restraint was necessary.

Mode of Treatment.—Immediately on the admission of a patient a calomel purge and twenty grains of trional mixed in water, with ten minims of tincture of capsicum to hasten absorption, were administered, and, if the condition would warrant, a very hot bath was given, its temperature being gradually lowered. The patient was then placed in bed in a well-ventilated room and restrained with sheets and shackles. If the delirium showed no signs of abatement in thirty minutes, ten grains of trional were given. If this had no effect in an hour, twenty grains were added. In nearly every instance in the cases reported, sleep followed the administration of fifty grains and the pulse and respiration were stimulated. The drug can be administered either as a mixture with water, in capsules, dry on the tongue, or by rectum.

In several cases, on account of the feeble and weak condition of the pulse, digitalis—preferably the fluid extract—was administered. Beyond trional in a limited number of

cases, no medication was given except a routine tonic consisting of strychnine with a mixture of the vegetable bitters and ammoniated tincture of valerian. In no case was a marked depressing effect from trional observed. The pulse always remained good, and, except in Case X, where forty minims were administered hypodermically shortly before death, whisky was not used. Possibly on account of the ethylic and methylic elements in its composition, the drug acted as a cardiac stimulant rather than, as was supposed by many, a depressant. As my experience has shown that a moderately high temperature is almost a constant accompaniment of severe delirium tremens, it is important to note that in no case did the temperature rise above 102°, consequently the drug certainly possesses antipyretic properties.

In all cases forced feeding, in small quantities often repeated, was followed, the diet consisting of milk, eggs, and soups.

The following is a report of twenty-five cases where trional was used exclusively. In three more cases, thirty grains of chloral and forty grains of bromide of potassium were administered, as the drug could not be obtained.

CASE I.—P. B., bricklayer. Admitted at 5 P. M., August 15th. Twenty grains of trional given immediately, followed one hour later by ten grains. Immediate effect. Awoke at 10 P. M., when twenty grains were administered. Slept until morning. Shackles removed. Routine tonic treatment.

August 18th.—Discharged cured.

CASE II.—C. C., aged forty-four years, laborer. Complication scalp wound. Admitted August 15th. Delirium tremens developed at 4 P. M. when twenty grains of trional were given, followed by twenty at 5 and twenty at 7 P. M. Sound sleep induced. Pulse and respiration good.

August 16th.—Shackles removed. Routine tonic treatment.

17th.—Discharged cured.

CASE III.—S. P., aged thirty-eight years, ironworker. Admitted August 21st at 6 P. M., when twenty grains were given, followed by twenty at 9, fifteen at 10, and twenty at 11 P. M. Slept remainder of night.

August 22d.—Ten grains at 9 A. M. Quiet throughout the day. Ten grains at 9 P. M., and again at 1 A. M., with good effect.

23d.—Shackles removed. Routine tonic treatment.

CASE IV.—F. W., aged forty-one years, laborer. Admitted August 21st, midnight. Twenty grains on admission, repeated at 1 and again at 2 A. M. Slept until 7 A. M.

August 22d.—Twenty grains at 1 and 9 P. M. Slept the entire night.

23d.—Shackles removed. Slightly nervous at 9 P. M., when twenty grains were given. Passed a good night.

24th.—Awoke in excellent condition. Routine tonic treatment.

26th.—Discharged cured.

CASE V.—P. J. M., aged thirty-one years, expressman. Admitted August 17th at 4.30 P. M., when twenty grains were given with good effect. Slept from 6.30 to 9 P. M. when twenty grains again were given. Passed a comfortable night.

August 18th.—Shackles removed. Ten grains at 9 A. M., followed by routine treatment until August 19th. Discharged cured.

CASE VI.—J. K., aged forty-two years, bricklayer. Admitted August 17th, 6.35 P. M., with a delirium of the most aggravated type. Trional, fifty grains, given within two hours

following admission. Sleep induced. Awoke at 1.30 A. M.; restless and excited until 3 A. M. Twenty grains given with immediate effect. Slept quietly until seven.

August 18th.—Markedly improved. Trional, twenty grains. Ten grains, 9 P. M. Unbroken sleep for twelve hours.

19th.—Awoke refreshed. Perfectly rational. Shackles removed.

20th.—Tonic treatment.

21st.—Discharged cured.

CASE VII.—J. D., aged thirty-eight years, junkman. Admitted August 17th at 4.30 P. M. Developed delirium tremens two hours after admission, when trional, twenty grains, were given; repeated at 9 P. M. Quiet. Passed a comfortable night.

August 18th.—Shackles removed. Ten grains at 1 P. M. and again at 9 were administered. Sleep followed.

19th.—Discharged in excellent condition.

CASE VIII.—H. C. S., aged forty-five years, farmer. Admitted August 20th at 1.30 P. M. Twenty grains on admission, followed by ten grains half an hour after, and twenty grains four hours later. Patient quiet. At 7 P. M. twenty grains given with good effect, lasting throughout the night.

August 21st.—Awoke much improved but still very nervous. Twenty grains given at 9 A. M., repeated at 10 A. M. with fairly

CASE IX.—F. R., aged thirty-two years. Canvasser. Admitted, August 23d, 10.45 A. M. Twenty grains of trional were given, followed by ten grains at 12; four hours later, twenty grains. Sixty grains given during the night.

August 24th.—Shackles removed this A. M. Ten grains at nine and 1 P. M. Excellent effect.

25th.—Discharged.

CASE X.—F. T., aged forty years. Drug clerk. Admitted September 7th at 8.45 P. M. Was violently delirious when admitted; pulse feeble and irregular. Twenty grains of trional were given immediately without effect, and doses were given at intervals throughout the night aggregating at 7.30 A. M. a hundred and twenty grains. The pulse had become bad at 1 A. M. and large doses of strychnine were given. It was not much better at four o'clock, when one drachm of aromatic spirits of ammonia was administered.

September 8th.—At 7.30 A. M. the pulse was found improved and the patient had grown somewhat quieter. Thirty grains of trional were given by the rectum, and at 1 and 3 P. M. ten grains by the mouth. At 7.30 P. M. the condition changed unfavorably and the patient began to sink rapidly. He was given forty minims of whisky hypodermically; glonoin, one fiftieth of a grain; fluid extract of digitalis, two minims. He died at 8.30 P. M.

Case.	Name.	Age.	Occupation.	Admitted.	Quantity trional administered.	Trional discontinued.	Remarks.
11	J. C.	36	Pressman.	Aug. 15, 7 P. M.	Gr. 185.	Aug. 16, 5 P. M.	Discharged Aug. 17. Gr. 165 given on the 16th.
12	T. R.	35	Painter.	Aug. 31, 1.15 P. M.	Gr. 110.	Aug. 22, 9 P. M.	Sedative effect observed after first dose of gr. 20. Asleep at 9 P. M. after gr. 70. Discharged Aug. 25.
13	T. B.	32	Steam fitter.	Aug. 23, 11 P. M.	Gr. 100.	Aug. 25, 1 P. M.	Gr. 50 induced sleep. Discharged Aug. 26.
14	J. D.	35	Machinist.	Aug. 20, 1.45 P. M.	Gr. 100.	Aug. 22, 9 P. M.	Sleep followed gr. 70 administered. Discharged Aug. 23.
15	W. H.	56	Cook.	Aug. 15, 10.35 A. M.	Gr. 120.	Aug. 16, 9 P. M.	Gr. 70 given during first five hours. Discharged Sept. 11.
16	H. M. C.	54	Mercantile.	Sept. 6, 4 P. M.	Gr. 160.	Sept. 9, 4 A. M.	
17	L. M.	30	Peddler.	Sept. 6, 7 P. M.	Gr. 110.	Sept. 10, 9 P. M.	No delirium. Cured Sept. 10. Treated subsequently for tuberculosis.
18	D. H.	35	Laborer.	Sept. 7, 1.10 A. M.	Gr. 180.	Sept. 9, 1 P. M.	Discharged Sept. 10. Gr. 80 during first six hours.
19	W. R.	36	.....	Sept. 7, 1 A. M.	Gr. 70.	Sept. 8, 9 P. M.	Discharged Sept. 9. Responded to first dose of gr. 20.
20	J. B.	40	Hatter.	Sept. 9, 11.40 P. M.	Gr. 60.	Sept. 10, 5 P. M.	Discharged Sept. 12.
21	J. H.	53	Orderly.	Sept. 9, 2 P. M.	Gr. 50.	Sept. 15, 9 P. M.	Discharged Sept. 12. Responded to first dose of gr. 20.
22	W. K.	35	Shoemaker.	Sept. 15, 1 P. M.	Gr. 70.	Sept. 16, 9 P. M.	Gr. 60 first ten hours. Slept between doses.
23	W. F.	37	Fireman.	Sept. 15, 9.50 A. M.	Gr. 90.	Sept. 16, 1 A. M.	Discharged Sept. 19.
24	E. D.	28	Stableman.	Sept. 18, 9 P. M.	Gr. 70.	Aug. 19, 11 A. M.	Deep sleep resulted after administration of first gr. 50.
25	F. R.	32	Canvasser.	Aug. 23, 10 A. M.	Gr. 120.	Aug. 25, 1 A. M.	Gr. 100 during first twenty-four hours. Discharged Aug. 25.
26	J. H.	31	Hackman.	Sept. 14, 11.45 A. M.	Gr. 80.	Sept. 15, 9 P. M.	Chloral, gr. 15; potas. brom., gr. 30, given on admission. Trional began 9 P. M., Sept. 14; asleep, 9.45. Discharged Sept. 16.
27	W. A.	38	Laborer.	Sept. 9, 7.15 P. M.	Gr. 130.	Sept. 11, 9 P. M.	Bromide and chloral given in early stages. Trional began 9.30 A. M., Sept. 11. Discharged Sept. 16, 9.30.
28	B. C.	44	Mechanic.	Sept. 30, 5 P. M.	Gr. 70.	Sept. 10, 4 A. M.	Sleep followed gr. 50 given during first three hours. Bromide and chloral given later. Discharged Sept. 11.
29	L. M.	37	Longshoreman.	Sept. 11, 7 A. M.	Gr. 80.	Sept. 12, 3 A. M.	Bromide and chloral on admission. Trional began 1 P. M. on the 11th. Sleep followed administration of gr. 60. Discharged Sept. 14.

good effect. Twenty grains at 9 P. M. induced sleep shortly after. Pulse irregular and intermittent.

22d.—Awoke with pulse and respiration much improved. Shackles removed. At 9 P. M. ten grains induced a good night's sleep.

23d to 25th.—Routine tonic treatment necessary until discharge on latter date cured.

The drug was used in several other cases of *mania a potu* with excellent results. I regret that a record of these cases was not kept. They were seen in consultation with Dr. J. F. Hagerty, house surgeon First Surgical Division, and Dr. Frank Connelly, Third Surgical Division.

Summary.—1. Delirium was controlled with greater rapidity and safety by trional than by other hypnotics.

2. In the majority of cases a marked stimulant effect was observed, possibly on account of the methylic and ethylic elements which enter into the composition of the drug.

3. On account of the low temperature noted in all cases, trional must possess antipyretic properties, thereby simulating its allies of the phenol group.

4. It was always well borne by the stomach, and in one case was rapidly absorbed when administered *per rectum*.

5. No unpleasant after-effects were observed, and in all cases, barring Case X and a tuberculosis complication, recovery was speedy.

THE VALUE OF AN ETHEREAL SOLUTION OF IODOFORM IN THE TREATMENT OF HÆMORRHOIDS.

BY CARL BECK, M.D.

AFTER considering the great absorbent power which iodoform dissolved in ether exerts in such conditions as cysts, lymphomata, goitre, etc. (hydrocele also, in which I have recently employed it successfully), where a shrinking process of the tissues is intended, I was induced to try its effect in the treatment of hæmorrhoids, and the good results which I have obtained in eight cases encouraged me to recommend this remedy to the profession, although I am well aware that the small number of cases, as well as the short time which has elapsed since the operations were performed, may impair, to some extent, my colleagues' confidence in the new method.

The operation is done in the following manner: After having prepared the patient by cleansing the bowels thoroughly with repeated irrigations of a solution of salicylic acid about fifteen minutes before the operation, a suppository containing two grains of cocaine and from a quarter to a third of a grain of morphine is introduced into the rectum. If the patient is extremely sensitive at the beginning of the operation, a one-per-cent. solution of cocaine should be injected into different portions of the mucous membrane, but practically I have never found this to be necessary. It may predispose the patient to hæmorrhage.

After the introduction of an iodoform-gauze tampon through a small speculum, the tumors are brought into view without grasping them with a forceps. Two drops of a saturated solution of iodoform in ether are then injected into the cellular tissue adjoining each nodule. Injecting this on both sides of the latter causes a formation of scar tissue and a shrinking of the circumvenous tissue. If the cocaine-morphine suppository has been introduced at the proper time, the pain following this procedure is very slight and passes away in a few moments. In place of the gauze tampon, a suppository containing two grains of salicylic acid is now substituted, and bismuth and opium are given to prevent a movement of the bowels.

On the third day two ounces of olive oil are injected into the rectum, and castor oil is given *per os*. During the

subsequent weeks great care should be taken to keep the bowels loose. This operation does not prevent the patient from attending to his daily work.

I have not observed any bad effects, such as sepsis, abscess, ulceration, embolus, hæmorrhage, and stricture or fistula, and no relapse has yet occurred in any of my cases. If no obliteration, but contraction, should take place in a large hæmorrhoid, I would repeat the operation.

The following advantages are to be derived from the injection of iodoform dissolved in ether: 1. The operation can be performed without assistance, thus materially lessening the expense, which to many patients is an important item. 2. Iodoform, being a strong antiseptic, is certainly fitted to prevent suppuration or possibly sepsis, and differs considerably from the much-used carbolic acid, which, if employed in the requisite strength, acts as a caustic. 3. As the nodules themselves are not touched, but only the circumvenous tissue, it is evident that embolism, which follows the use of carbolic acid and other liquids, can not occur. (Death due to the injection of carbolic acid is by no means a rare occurrence. In a case of my own, after I had injected a ten-per-cent. solution of carbolic acid into three small nodules in a young woman, a temperature of 106° F. set in ten hours afterward. On the following day icterus developed, but fortunately disappeared two weeks later, leaving the patient in a very weak condition for several months.) 4. No contraction takes place, such as follows the use of the cautery. 5. The patient can resume his work at once.

Seven months ago I used this treatment in the first case, five months ago in two cases, and four months ago in another case, and in all the hæmorrhoids have disappeared. The four remaining patients, who are doing well, were treated between one and three months ago.

I have had no opportunity of employing this method in treating so-called thrombotic and capillary hæmorrhoids, but I do not see why they should not yield to it.

In one of the cases mentioned the patient had prolapsed and large tumors, and I used this injection with good results, although the sphincters were contracted. If I had failed, Whitehead's operation would then have been performed. Among the other cases two of the patients had internal and five external hæmorrhoids, and, although in two cases there was inflammation, the injections were well borne and successful.

From a strictly surgical point of view, Whitehead's operation is the ideal one. But it should not be forgotten that it can be done only when good and sufficient assistance is obtainable; furthermore, it confines the patient to his bed for at least two weeks. What this means to a poor workingman every physician knows, and in New York city, where, on an average, every fourth adult suffers from hæmorrhoids, such points have to be taken into consideration.

In reference to their frequent occurrence, I may say that it was quite customary in Germany to call hæmorrhoids "the American disease" before America had enlightened the Old World about appendicitis, which is now honored with this term. There is some truth in this, for the busy and enterprising American citizen, in his haste to become

rich, does not seem to pay sufficient attention to the ordinary laws of health.

Since this article was written I have operated in four other cases with the same good results. I have also tried the same injection in the circumvenous tissue in two cases of varix. One was that of a woman, fifty-seven years old, who had suffered from varicose veins of the legs for twenty-seven years. Perfect recovery took place when I had injected at eight different points. In a case of varicocele in which I tried the injection in the same manner the result is still imperfect, probably because I used too small a quantity of the solution. It gives me pleasure to state that Dr. Struble, of Middletown, N. Y., has written to me that, having witnessed my demonstrations of this treatment at the Post-graduate Hospital, he has employed these injections in two cases of hæmorrhoids with perfect satisfaction.

37 EAST THIRTY-FIRST STREET.

SUPPURATIVE DISEASE OF THE ACCESSORY SINUSES OF THE NOSE.*

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A CHRONIC, purulent discharge from the nares, associated with little or no fœtor perceptible to the attendant, with a history of nasal polypi, an acute "head cold," hypertrophic nasal catarrh, or perhaps of alveolar abscess, at a period more or less remote, has, comparatively speaking, only recently and with the development of the study of rhinology been of any special significance to the surgeon.

With the evolution of the specialist, however, classification of diseases of the special organs on more scientific bases was soon followed by a clearer comprehension of the nature of a morbid condition of which such a discharge is the evidence, and in many instances the only evidence, at the command of the physician.

Treatises on general surgery, as found in many of our libraries, contain very little that is of practical value upon the subject, and even those more recent and exhaustive works upon rhinology and laryngology which have appeared within the last decade give comparatively little space to the discussion of the ætiology, pathology, and treatment of a morbid condition the importance, the consequences, and the extreme obstinacy in resisting cure of which can only be estimated by those who, like myself, have often seen their best efforts vainly directed, and that with perfect cognizance of the existing condition, toward their relief.

That empyema of these sinuses is not an infrequent complication I am assured as well from the number I have myself seen as from the reports of others, and yet I am convinced that it is less often recognized and correctly differentiated than almost any other disease of the nasal tract.

Garretson (*System of Oral Surgery*) draws the conclu-

sion that "diseases of the antrum are for the most part simple in character, easy of diagnosis, and, as a rule, not at all difficult of treatment." This conclusion is very misleading, and I think will be borne out only by the experience of the oral surgeon and not by that of the rhinologist, for reasons at once patent—the former, as a rule, coming in contact with those cases arising from caries of the teeth alone, and that during or very early subsequent to the acute stage, while the latter has to deal with those arising primarily in the cavity or from a diseased condition in the nares as well, and, as a rule, is consulted only after chronicity is well established, the history often indefinite and merging into that of polypus or hypertrophic catarrh, and without those perfectly clear, ætiological landmarks which present to the former. Now, if this be true of the antrum, the largest and most commonly affected of all the accessory cavities, it applies with much greater force to that condition affecting the frontal and sphenoidal sinuses and the ethmoidal cells. When these cavities are affected it is by no means an easy matter to correctly diagnosticate the case, and still less so to successfully treat it.

In the first place, this condition of empyema, simulating as it does in its morbid products an abscess, is in every other respect analogous to a "gleet"—an idea suggested by Mr. Bell and quoted by Dr. Garretson, who says in making the comparison: "Both diseases consist equally of an altered secretion, in one case of the pituitary membrane, and in the other of the muscular lining of the urethra, which in neither instance possesses any of the characteristics of abscess, though the matter in both is purulent."

In this respect does empyema of these sinuses differ from suppurative disease of the mastoid cells. In the former it is the normal secretion which is altered, a mere perversion of function, and that often before any structural lesion can be determined to exist.

I do not mean that exfoliation, ulceration, caries, and necrosis may not occur in the course of a long-standing empyema in these cavities, for it often, I might almost say invariably, does occur unless relief is effected; but it is the effect and not the cause of the continued suppuration, as is the case in mastoid complications of middle-ear difficulty.

Reviewing what has been written upon the ætiology, we find a somewhat startling discrepancy of opinion even among contemporaries with equal opportunities for observation. All agree, however, that the disease in question is almost without exception secondary to one or more of three conditions—viz.: (1) Disease of the teeth or surrounding structures; (2) disease of the nasal chamber proper; or (3) a constitutional condition which predisposes to erosions of mucous surfaces throughout the body, but especially those of the upper air-passages. Cases arising from this last cause form such a small proportion of those which come under our observation, besides being of such minor importance when considered in the light of the more grave and serious symptoms manifest in these conditions, that they will not be considered in this article. We are then reduced to the two classes of causes as above first mentioned. Which of these is the most frequent it seems to be impos-

* Read before the Section in Surgery of the Michigan State Medical Society, May 4, 1894.

sible to decide, where reference is had to the antrum, when observers of such unquestionable experience and integrity as Bosworth, Fraenkel, Zuckerkandl, and Christopher Heath disagree, Bosworth and Zuckerkandl finding nasal lesions most often the cause, while Fraenkel and Christopher Heath are able to attribute the greater number to dental caries. In an analysis of thirty-one cases, Kuchenbecker found thirty-three per cent. to be due to dental caries, twenty-two per cent. to general diseases, ten per cent. to tumors, twenty-two per cent. to unknown causes, while but thirteen per cent. could be attributed to causes arising within the nose. (Burnett, *System of Diseases of the Ear, Nose, and Throat*.)

The proportion here attributed to general diseases seems to me extraordinarily large, likewise the number for which no cause could be found; but that it is often impossible to determine which of two existing lesions—dental caries or hypertrophied and degenerated turbinated tissues—is the primary cause of pus secretion in the antrum, I am very well aware.

That empyema of the antrum may supervene upon a catarrhal inflammation in the nares without other factors in its causation is no doubt possible under two conditions—*i. e.*, (1) there must be an extension or a coexistence of the catarrhal inflammation in the lining membrane of the antrum, exciting secretion in excess of what can be absorbed by the lymphatics, and (2) there must be an occlusion of the ostium maxillare of sufficient duration for the accumulation and decomposition of the secretion, which may then, by the irritation of its presence, excite a further discharge which finally becomes purulent. The natural opening of this sinus into the meatus is so situated as to be protected from occlusion by any save the most aggravated cases of hypertrophic rhinitis, which fact may explain the infrequency of antral complications in our recent epidemics of influenza, where undoubtedly the lining membrane of the accessory sinuses was often affected simultaneously with that of the nasal chambers by the common infecting agent.

In the case of polypus and polypoid hypertrophy, on the other hand, the respective openings of these cavities may become occluded; in fact, rarely is it otherwise in neglected cases. But unless the growth projects into the cavity, and by irritation of its presence causes supersecretion, which degenerates into a purulent discharge, the function of the lymphatics prevents empyema.

My own experience, together with what I have been able to glean from reports extant upon the subject, convinces me that suppurative disease of the antrum is of very much more frequent occurrence than that of all the other accessory cavities put together, but I can not well see why the antrum should be more often affected by causes arising within the nose than should the other sinuses, subjected as they are to identical influences so far as the nose is concerned; and it is the consideration of these facts, supported by my experience in these complications, which strongly inclines me to the belief that to diseases of the teeth and surrounding structures we must look for the most frequent causes of empyema of the antrum, while to intranasal dis-

ease in the majority of instances may be attributed a like condition occurring in the other accessory cavities.

The importance of early recognizing the exciting cause of the disease in question can not be overestimated by one who expects success to attend his efforts toward a cure. The diagnosis of empyema of the accessory sinuses when but one cavity or but one side is affected and in typical cases seen early is not difficult; but typical cases are not the rule, and it is seldom that the advice of the surgeon is sought before chronicity has complicated the primary lesion with its confusing sequelæ, and then it is that diagnosis will often of necessity sink to the level of mere conjecture.

The Voltolini method of transillumination by means of a small incandescent lamp promised much toward making diagnosis in these cases easy, but I must confess that I have not found it a very reliable test, except in demonstrating the presence of pus in the frontal sinuses. Where the ethmoidal cells and maxillary sinuses are suspected it has been of little value in my hands, and, to be brief, a chronic purulent discharge from the nares, more or less profuse, especially if it be unilateral and we can eliminate syphilis, foreign body, neoplasm, and simple purulent rhinitis, rarely if ever seen in adult life, is a sufficiently suspicious sign to warrant us in taking the only step which will make the diagnosis absolutely correct—namely, abstracting pus from the suspected cavity. This may be effected by means of small aspirators constructed of proper shape and strength in the case of any of the cavities in question except the frontal sinuses, without excessive pain and with little or no danger of untoward results if the suspected cavity should prove healthy. In the instance of the frontal sinus being suspected, provided I could not otherwise differentiate, I should not hesitate to make an incision through the skin and enter the sinus with a small Curtiss trephine or drill, as in the case reported below, convinced as I am that if the frontal sinus is affected this procedure results in most rapid cure, with the least inconvenience to the patient, while if it should by any chance not be diseased the wound heals with an almost imperceptible scar. It is hardly necessary to say that where suspicion falls upon the antrum and a carious tooth exists upon the affected side, removal of the diseased tooth, especially should it chance to be a first molar or second bicuspid, is the indication, when, if this alone does not affect an entrance, it is a very easy matter to do so through the alveolus; should the teeth be perfectly sound, however, I should aspirate through the thin lateral wall of the nose as low down as the floor of the inferior meatus with a strong curved trocar.

Upon the establishment of the diagnosis, relative to the ætiology in these cases, will depend, to a certain extent, the prognosis, although it has been my misfortune to see a number of cases continue indefinitely and with only slight improvement after every vestige of the primary cause was removed, as in the third case reported below.

On one point with reference to prognosis I think all observers agree—*i. e.*, spontaneous resolution never occurs in these cases when the cause is attributable either to lesions within the nasal chambers or to those connected with the teeth.

Moreover, when once the antrum has been the seat of an empyema for any considerable time, and especially if drainage has been established through any but the normal opening, I believe it to be extremely doubtful that it can ever again resume its normal condition and manner of evacuation; the prolonged contact with pus so disturbing or destroying the cilia of the epithelium as to make the discharge of their function impossible. With regard to the other sinuses this does not apply, since gravitation alone is a force sufficient to effect drainage, provided the normal outlets are patent.

But here, also, a successful issue of the case is often long delayed, and the prognosis as to complete restoration a matter of great uncertainty, unless a cure is attempted by radical operation.

Of the treatment of this affection I can say very little that is not better illustrated in my reports of the three cases cited below, which I have selected for the very reason that they embrace about all that I have found to be beneficial in the matter of treatment, and that, as will be seen, is not such as to warrant me in any great amount of self-glorification.

CASE I.—A woman, sixty-seven years of age, came to the "throat clinic" of the New York Post-graduate School and Hospital late in the summer of 1889, complaining of a profuse purulent discharge from the nares, which was attributed to "chronic catarrh," for which she had been treated for nearly two years; the discharge amounting at times to a teacupful in twenty-four hours. The patient was somewhat emaciated and very anæmic. Examination revealed a large quantity of laudable pus within the nares—more in the right than in the left, but present in both—removal of which was soon followed by re-appearance in the right middle meatus. Leaning toward the left side rapidly filled the right naris and more slowly the left. The turbinated tissues were anæmic, otherwise normal, while the cartilaginous septum was perforated. Examination of the mouth discovered an apparently healthy state of the alveolar ridge. The patient had worn a full plate of artificial teeth for ten years. The question lay between empyema of the antrum and that of the ethmoidal cells. I decided to eliminate antral disease, and accordingly entered the antrum from the alveolar ridge in about the location of the first molar with a small Curtiss nasal trephine. A large quantity of slightly malodorous pus immediately followed the withdrawal of the instrument. The cavity was then washed out with a carbolyzed solution and explored with a probe. A hard, movable body was discovered, attached by soft tissues to the floor of the antrum. The opening was then enlarged to admit of the extraction of what proved to be a portion of the root of a tooth which had doubtless been as a foreign body within the antrum for the space of ten years or more. My prognosis was favorable to rapid recovery. Subsequent treatment by flushing the cavity daily with a borate-of-sodium solution, and the use of peroxide of hydrogen (an agent which I have since entirely abandoned in such cases), reduced the discharge to a muco-pus, which was evacuated through a metal drainage-tube, attached to the dental plate, in quantities varying from half an ounce to an ounce daily. The nasal discharge ceased at once. I saw the patient six months later and her condition was unchanged, save that the artificial opening into the antrum had become permanent, and the metal tube had been discarded. She was in the habit of douching the antrum every day with a solution of boric acid.

CASE II.—In the early fall of 1889 I was called to see a

patient suffering from influenza, then epidemic—a woman, thirty-two years old, of previous good health. There was nothing unusual about the case, save a persistent and severe congestion of the pituitary membrane, which failed to react even to cocaine. The usual headache accompanying grippé was in this instance particularly severe, and morphine was used to control the pain. At the end of a fortnight the parts had somewhat regained a normal appearance, and a discharge, at first of muco-pus, afterward of a thick yellow pus, supervened. Otherwise there were no complications in the case. A treatment of detergent and antiseptic sprays and douching by means of a modified Eustachian catheter for several months seemed to have little or no curative effect. Up to this time the patient had suffered no pain or discomfort, save from the discharge of pus, which at times was very profuse. Suddenly, in the early part of December, I was called to attend the patient at her house. I found her suffering from excruciating frontal headache; the discharge from the nares had ceased. The use of a strong solution of cocaine reduced the turgescient tissues temporarily, re-established the discharge, and relieved the pain somewhat. There was no displacement of the eyeball, nor swelling or redness at the inner angles of the orbits, and after draining the cavities as well as I could, and cleansing the nares with an antiseptic solution, I left the patient in comparative comfort. Late on the same night I was again called and found the patient with a temperature of 103° F., a very rapid pulse, and intervals of delirium. I had from the first diagnosed the case as empyema of the frontal sinuses (double), and I now believed the symptoms present to be due to pressure upon the brain structures, caused by the accumulation of pus within the sinuses and the occlusion of one or both ostia. Although even at this time there was not the usual bulging at the inner angles of the orbits, I regarded the case as an emergency, and determined to open the sinuses without delay. Sending for my surgical engine and set of drills, I at once made the incisions on a line with, and a little below, the supra-orbital ridges, from about a quarter of an inch on either side of the median line, an inch in either direction; then, by means of a drill, I opened through to both sinuses, and had the satisfaction of evacuating a greater quantity of pus than it would be imagined these sinuses could contain. Relief from the untoward symptoms almost immediately followed, and the following day (under chloroform) I curetted the cavities, scraping away considerable necrosed bone. The treatment and dressings subsequently were what would be indicated in any like instance, and there was complete recovery within three weeks, with by no means an unsightly disfigurement.

CASE III.—In December, 1892, I was consulted by a gentleman about forty-five years of age. The history of this case was, in brief, as follows:

About three years and a half before consulting me the patient had suffered from alveolar abscess of the first left molar. Upon extraction, an abscess sac was discovered upon one of the fangs. Within twenty-four hours after extraction a profuse discharge of pus occurred and persisted from the left naris. An incision was then made through the alveolus, followed by a purulent discharge, which continued as long as the opening thus made was patent.

It seems worthy of note in this case that disease of the walls of the antrum was not the result of extension through continuity of structure, but through mere contiguity of a pathological condition.

In July, a month following the first appearance of the purulent discharge from the nose, the patient went to Detroit, where an opening (under chloroform) was made into the antrum in the region of the canine fossa. A glass drainage-tube was in-

serted, through which the patient was directed to inject a solution of peroxide of hydrogen once or twice daily. A year later, while in Philadelphia, he was advised to discontinue the peroxide of hydrogen and substitute a carbolyzed solution. This treatment had been continued, with some variation, from time to time up to the date of my first attending him.

I found a discharge from the left naris of laudable pus sufficient to soil three or four handkerchiefs daily. The ostium maxillare was perfectly patent, and the condition of the turbinated tissues was normal. There existed an antral fistula through the alveolus, so small as to admit only the smallest probe, but no pus was discharged by it. I enlarged the opening in the alveolus by means of a drill, evacuating a large quantity of pus, and, after thoroughly cleansing the antrum, examined the interior with a probe. I found it partly divided into two chambers by a thin septum of bone, which I broke down with an abscess curette. The treatment then consisted in frequent douchings with solutions of boric acid (saturated), carbolic acid (two per cent.), and bichloride of mercury (not stronger than 1 to 10,000), which was continued, more or less regularly, for a year, with but one advantage gained—viz., the discharge from the nose entirely ceased, and that through the fistula was reduced in quantity. Early this year an examination with a probe detected what seemed to me to be a disease at the root of the wisdom tooth, the only remaining molar on that side of the arch. Upon extraction an abscess sac was found upon the root, which had extended into the antrum; removal of the tooth effected another opening through the floor of the antrum, and with the free drainage thus established I hope for early recovery. For nearly a month I treated the case much as before, reducing the discharge considerably, but not entirely.

I might add that at this time I resorted, without appreciable results, to the use of tincture of iodine, at first half diluted and afterward full strength; also to solution of silver nitrate, fifteen grains to the ounce, and tincture of chloride of iron, diluted one half. I then tried the so-called "dry treatment," which consisted in thorough cleansing with a syringe and Eustachian catheter adapted to fit the fistulous opening, and an antiseptic solution; then evaporating the moisture from the walls of the antrum by injecting a current of air through the same by means of a Politzer bag until dryness is obtained. I then insufflated impalpable powder (boric acid, stearate of zinc with euophen, stearate of mercury, or tannin).

I saw the case last Monday, and there was still a purulent discharge through the alveolar fistula (which, by the way, has at no time shown a disposition to close)—not at all profuse or annoying in comparison to what it had been, but still the result has been less satisfactory than I had hoped or expected it to be.

In conclusion, I will only say that my experience with these cases has led me to entertain rather pessimistic views as to their ever yielding perfectly satisfactory results, unless seen early in their course, before chronicity is established, and even then when the treatment is more radical than we have been in the habit of employing.

86 JEFFERSON AVENUE.

The Idaho State Medical Society will hold its second annual meeting in Boise on Monday, Tuesday, and Wednesday, September 10th, 11th, and 12th, under the presidency of Dr. W. W. Watkins, of Moscow.

The Clinique.—It is announced that Dr. Emory Lanphear has become the editor of the *St. Louis Clinique*.

INCIPIENT INFLAMMATIONS OF THE EAR IN EARLY LIFE, AND THEIR SEQUELÆ.*

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It is the object of this paper to present to you a few suggestions for the purpose of stimulating a more general interest in the primary aural inflammations that must necessarily first come under the care of the general physician. The prevention of diseases of the ear and the subsequent deafness, rather than the frequently futile efforts to relieve conditions that could and should have been prevented, must be the aim of all true physicians. The evident lack of interest and information concerning diseases of the ear doubtless arises in great part from the fact that until recently this subject has received little or no recognition from our medical colleges. Furthermore, the demands of an active practice will allow the busy physician but little time to devote to the study of otology, and therefore he has frequently felt impelled to use palliative measures when more radical treatment was demanded.

It has been estimated that from eighteen to twenty-two per cent. of school children are unable to write dictations correctly when the teacher speaks in a high tone of voice at a distance of twenty to twenty-five feet. If these deductions are even approximately correct, it reveals an increasing and alarming affliction among our young population, to which neither our profession nor the public have given due and serious consideration. Now, as the great majority of ear diseases (excepting traumatism) have their incipency in infancy and early childhood, and, as the practitioner of general medicine is always, and very properly, the first to be consulted in all that pertains to the health and physical care of his patient, he must, therefore, to a great extent be morally responsible for the proper management of these incipient ear troubles and for the prevention of the possible serious sequelæ.

He who would not promptly care for and protect the eyes of the newborn infant would indeed be regarded as very remiss and negligent in the performance of his professional duties. If this be true in regard to the eyes, why should not the health of the ears be of equal importance? Within the past three years it has fallen to my lot to see six infants die from disease of the middle ear, and, unfortunately, in every case the trouble had not been recognized until within a few hours of their death. Four of these patients were thought to have been suffering from "brain fever" and two from "meningitis." We should not hastily conclude that a child is "born with a temper" simply because its youthful being is disposed to resent suffering, and so resorts to crying as its only means of expression. When a child frets and cries persistently, and the cause can not be otherwise located, an examination of the ears will frequently reveal the difficulty and suggest prompt means of relief.

* Read before the Pennsylvania State Medical Society, May 16, 1894.

In years past the belief prevailed that there was something mysterious, or at least most intricate, connected with morbid conditions of the ear and their treatment. While this curious impression is still somewhat in vogue, it is nevertheless gratifying to note the gradual disappearance of the gross ignorance and empiricism that divided all diseases of the ear into two great classes, "wax and no wax," "wax curable and wax incurable." Likewise, the charlatan, whose prosperity is usually notable but brief, has been compelled to seek other fields of operation, where he can astonish another credulous community with some startling wonder.

During intra-uterine life there is an accumulation of a semifluid substance within the tympanic cavity known as Wharton's jelly. At about the time of birth this fluid is usually absorbed through the physiological changes that take place in the tympanum, and by means of which air is admitted into the middle-ear cavity immediately following the first cry of the infant. The external auditory meatus is sometimes obstructed by the "cheesy varnish" (vernix caseosa) covering the surface of the fœtus. The presence of this material may cause inflammation of both the drumhead and the meatus itself. We are at times confronted with the statement that "the child was born with a discharging ear." This, however, is not likely to be the fact, for such a discharge in all probability has been caused by the presence of some unabsorbed Wharton's jelly acting as an irritant and exciting a suppurative inflammation of the tympanic cavity. It is well, therefore, to examine the external auditory canal of the newborn child, and if it be free from accumulated material and the membrana tympani is found to be congested, the tympanic cavity should be inflated by Politzer's method. If, however, this fails to relieve the symptoms, the drumhead should be carefully punctured and inflation again used, when the relief will be almost immediate.

The treatment of so-called "earache," when due to an inflammation in a previously healthy middle ear, becomes an important matter, not only for the purpose of giving relief from the suffering that is at times most intense, but an urgent interest in such cases is especially required from the fact that their prompt and proper treatment is frequently of vital importance to the patient. It is now generally accepted that brain and mastoid complications result from the acute suppurative inflammation of the middle ear, as well as from the chronic form. Having had the misfortune to see a considerable number of these serious complications, the writer must express the belief that they are in many cases preventable, and therefore we must consider it the imperative duty of every practitioner of medicine to be able to promptly recognize and immediately care for an acute suppurative inflammation (abscess) of the tympanic cavity.

It is necessary that we should recognize two forms of acute inflammation of the middle ear, the one caused by exposure to dampness, sea-bathing, the careless use of the nasal douche, dental irritation from decayed teeth or during dentition, or through continuity we may have an extension of some existing catarrhal condition of the throat or nasopharynx; the other form is that which occurs during

the course of one of the infectious fevers, and is usually purulent in character. The post-nasal space will always bear inspection, especially if the child is a mouth-breather. However, from whatever cause the acute inflammation may arise, the inflammatory product will undergo fatty degeneration, unless the Eustachian tube is sufficiently patulous to drain the middle-ear cavity, or unless the fluid finds egress through an opening made by puncturing the drumhead.

The treatment of an acute inflammation of the tympanic cavity will largely depend on the extent and severity of the attack. If the patient receives treatment during the stage of hyperæmia and consequent hypersecretion of the mucous lining of the Eustachian tube, tympanum, and mastoid cells, the inflammation will have been arrested and confined to the sero mucous or catarrhal stage. If, however, this early care has not been given, the case will progress to the stage of suppuration and subsequent rupture of the membrana tympani. As soon as pain of any character is complained of, bloodletting in front of the tragus is of the first importance. This may be accomplished by applying three to six Swedish leeches, or by the use of the artificial leech * devised by Dr. Gorham Bacon, of New York. There are some advantages in the use of the artificial leech as a means of extracting blood. The difficulty of using the natural leech is overcome in many cases, and especially in children; bleeding from the natural leech is much more difficult to arrest; its bite is painful, and may give rise to an erysipelatous inflammation; natural leeches are not always to be had and are expensive, whereas the artificial leech is always ready for use and inexpensive. In very young children, or in any case where bloodletting is not advisable, a blister in front of the tragus will answer the same purpose, unless the case is a severe one. Inflation of the tympanic cavity is an important part of the treatment in the majority of cases. This is readily accomplished in children by attaching a piece of soft rubber tubing to a Politzer's air bag and inserting this into the nostril; the spasmodic crying of the child naturally prevents the air from entering the throat, and it is thus gently forced through the tube into the middle ear. A continuous stream of a mild carbolic-acid or boric-acid solution—properly heated—should be carefully directed into the external meatus; the bowels must be thoroughly opened and the patient kept quiet. The mastoid is usually somewhat involved, but when promptly treated by running hot or cold water through a Leiter coil, bloodletting or blistering, the slight inflammation will quickly subside.

When this treatment fails to relieve the symptoms, it is safe to assume that an abscess of the tympanic cavity is forming, and no time should be lost in puncturing the drumhead at the most dependent point. It is not well in all cases to wait until there is bulging of the drumhead, as this will not occur in every case, and there is danger of spontaneous rupture if we delay too long. When there is discharge it is best treated by inflating the cavity twice per

* This artificial leech can be obtained from the W. F. Ford Surgical Instrument Company, of New York.

week and the daily injection of a warm solution composed of sodii biborat., 3 j; acid. boric., 3 ij; alcoholis, f 3 iij; aq. dest., q. s. ad f 3 viij.

Von Tröltsch has wisely observed: "The moral and intellectual future of a child stands in direct relation to the functional activity of the ear." This forcibly emphasizes the necessity of good hearing power as a prerequisite to the proper development of the intellectual faculties. How very common it is to have parents and teachers declare children dull in intellect, stupid, absent-minded, and lazy, for one or all of which severe punishment may be inflicted, when the real cause of their apparent stupidity is their inability to hear correctly! A few years ago a boy, nine years of age, came under the writer's notice. His parents informed me that he had "always been stupid, due to a defective intellect," and, following the advice of friends, they had subjected him to several methods of "mental training," including some punishment, but that his condition continued to grow worse, and they now regarded him as "going into a hopeless state of idiocy." I regret to say that this gloomy prognosis was also the opinion of their medical adviser. An examination revealed some post-nasal adenoid vegetations which entirely occluded the Eustachian tubes and post-nasal space. The irritation of these growths induced an inflammation of the tubes, which extended into the middle ear and thereby caused a purulent discharge which had persisted ever since. Such an exhibition of careless indifference on the part of a physician is unpardonable. Moreover, it is difficult to explain why many of these patients do not die from a brain or mastoid complication long before they receive intelligent care. The treatment required in this case was simply the removal of the adenoid growths, the use of an antiseptic wash in the external meatus, and inflation of the cavity by Politzer's method. The case recovered completely and permanently in less than two months, some slight impairment of hearing alone remaining.

The importance of these inflammations of the ear has a renewed and increasing interest when we consider the multitude of deaf-mutes that are directly traceable to a discharging ear as a consequence of one of the exanthemata. Contrary to general belief, deaf-mutism is not a distinct disease in itself, any more than pain or a rise of temperature could be regarded as an entirely separate ailment. Very properly, therefore, deaf-mutism must be accepted as a symptom or, still better, as a sequela of an existing disease. Moreover, as the organs of phonation and articulation are perfectly normal in deaf-mutes, their inability to speak is usually the result of deafness. Deaf-mutes, however, can be taught to speak and enter into conversation by what is known as the German system of instruction. From the foregoing it will be seen that the loss of speech in this class of cases is almost invariably due to deafness, and that deafness is always the result of either a diseased condition of the ear after birth, or, as is frequently the case, a congenital defect, such as an arrest of development of the internal ear. When the deafness is caused by a congenital arrest of development, there is no probability of the case ever being improved; but when

the deafness and subsequent loss of speech have been acquired after birth, such an affliction can frequently be remedied when promptly recognized and treated.

What a sad experience it is to have the parents of an otherwise healthy child apply for treatment with the hope of having both hearing and speech restored, when neither can be improved! The history of these patients is usually that the child had never been ill, that it could talk, and was bright and cheerful until two years of age or older, at which time it contracted one of the so-called children's diseases. An extension of this disease, which always affects the throat, developed an "earache" and abscess in the middle ear. This, however, was regarded as a natural, even a necessary consequence, and of little importance; therefore this grave complication was neglected, and, as frequently occurs, terminated in increasing deafness. In a short time the family noticed the child growing progressively less talkative, but were satisfied with the explanation that it was due "to its increasing backwardness and changed disposition." However, as its articulation became more and more indistinct, other advice was obtained, which developed the fact that the child was quite deaf, and to all practical purposes dumb.

It is sometimes difficult to determine the degree of deafness in early life. It is well, therefore, to caution the parents not to be deceived or to indulge the vain hope that because a child can repeat the words "papa" and "mamma," or other words of few syllables, it can really hear, for these are acquired by merely watching the movements of the lips. Again, it must be remembered that deaf-mutes are strangely susceptible to vibrations, and will for this reason have their attention called to and promptly turn in the direction of one entering the room, shutting a door, or when the atmosphere is disturbed by an effort to attract attention to some noise. Dalby has shown that a child of four or five years of age who has been brought up in India with a native nurse and taught as a first language Hindustanee, will have completely forgotten it in six months if it is brought to England and does not hear this language spoken. As Bonnafont has well said: "The mind of the deaf remains in a perpetual sleep. The blind man is a stranger in the physical world, and the deaf man is a stranger in the moral world. The deaf will overcome natural difficulties more easily than the blind. But in relation to moral difficulties the blind will play a better part than the deaf. The one, like Alexander, will cut the Gordian knot; the other will vanquish the sphinx and solve the riddle."

We are all familiar with a large number of blind people who have distinguished themselves in science, art, and literature, but we are able to record only one congenital deaf-mute, J. F. Berthier, of Paris, who has gained any prominence for his literary attainments. It is, indeed, not without cause that the deaf are more sad, morose, and cheerless than the blind. All that is glorious and beautiful in the external world is hidden from the blind man; but the deaf are deprived of that still greater charm, the enjoyment of social life with their fellow-men. It is a pleasure to see the bright, intellectual and happy expression that crowns

the blind man's countenance when he enters into conversation, for he then forgets his defect; whereas the deaf, under similar circumstances, are only reminded of their infirmity, and really feel downcast when any one addresses them.

Out of fifty-one deaf-mutes that have consulted the writer in the past few months, thirty-seven acquired their affliction, while the remaining fourteen were congenital. Of the acquired ones twenty-one resulted from scarlet fever, nine from diphtheria, five from measles, and four from traumatism. Nine were between the ages of one and two years, sixteen between two and three years, and twelve between three and five years. I think it is safe to assert that most of these acquired cases would have been prevented if the pus in the tympanum had been promptly evacuated at the opportune moment, followed by mild antiseptic irrigation of the external auditory canal, inflation of the tympanic cavity, bloodletting, and proper care of the throat. When this line of treatment is properly carried out, an acute abscess, from whatever cause, will in most cases promptly recover. The relief from suffering is almost immediate, the discharge will have been arrested in a few days, and the hearing is usually restored in two or three weeks.

On the other hand, if this simple but highly important care is not taken, the pain increases in proportion to the distention of the membrana tympani by the progressive accumulation of pus in the tympanum, until finally the pressure becomes so great that the tension of the drum is overtaxed, and with a report quite audible to the patient it ruptures, a copious flow of pus follows, and the suffering is relieved. By this time, however, great damage has been done both to the membrana tympani and tympanic cavity. Instead of the opening in the drumhead quickly repairing, as it will do when incised, its lacerated edges are much slower to mend. The injury done to the delicate mucous lining of the tympanic cavity gives rise to a discharge that becomes more or less chronic, and this in turn is conducive to one or more of the many serious complications that too frequently follow such a condition. Should this discharge continue for any great length of time, caries and necrosis of the ossicles, with destruction of the membrana tympani, and later the walls of the tympanic cavity, are almost sure to occur. Knowing that the bony walls of the tympanum are always thin; that the roof in some cases is entirely absent; that the carotid canal, through which passes the carotid artery, forms the anterior wall of the tympanic cavity; that the jugular fossa, in which lies the bulb of the jugular vein, constitutes the floor of the tympanum; and that the middle and back part of the temporo-sphenoidal lobe and the outer and front part of the lateral lobe of the cerebellum are in direct contact with the middle ear, it is indeed surprising that even a slight necrosis of this organ is not productive of more fatal results. It is from these neglected cases of either an acute or chronic suppurative inflammation of the middle ear that we have deafness and deaf-mutism, caries and necrosis, abscess of the brain and mastoid, diffuse meningitis, osteo-phlebitis, thrombosis of the lateral sinus, pyæmia, and infectious inflammation of the liver and other internal organs.

Therefore, gentlemen, when all this suffering and future affliction can be prevented by prompt and judicious treatment in the incipient stages, we must protest against the neglect and indifference that are so manifest in a large number of these cases. Notwithstanding the fact that these unfortunate complications usually arise from the chronic form of discharge, it must nevertheless be borne in mind that if the initial lesion is promptly and properly treated the disease will be quickly eradicated in the majority of cases, thus not only preventing the discharge from becoming chronic but often aborting the inflammation in its incipency, and so preventing its progress to the stage of suppuration.

1502 WALNUT STREET.

THE PATHOLOGY OF PERNICIOUS ANÆMIA.

BY WILLIAM MOSER, M.D.,

PATHOLOGIST TO ST. CATHARINE'S HOSPITAL, BROOKLYN.

THE anatomical changes in this condition are a little varied, and it is to be expected that writers on this subject are a little at variance. The term pernicious anæmia is a clinical designation, which does not betray the underlying morbid condition. It is not a disease *per se*, although some writers regard it as such. Its principal clinical manifestation, the profound anæmia, is dependent upon various morbid processes, the ætiology of which is by no means always clear. Malignant disease of the internal organs, especially cancer of the stomach, plays an important part in its pathology. In fact, in the autopsies which I have seen of pernicious anæmia cancer of the stomach was the primary lesion in over half the cases. The secondary pathological effects produced by this primary lesion can not be distinguished from those cases of so-called idiopathic pernicious anæmia—*i. e.*, those cases in which we are unable to determine the primary lesion, the cause. The *Anchylostomum duodenale* is classed by some writers as a cause of this condition. It may be in some parts of Europe. I never saw it in Germany, although I had occasion to see fourteen autopsies of pernicious anæmia in that country. The problem which confronts us is to find the primary lesion, the cause of these cases of so-called idiopathic pernicious anæmia. Certain changes in the stomach (degeneration of gastric tubules) are regarded by some as primary. I fear these investigators are confounding cause and effect. What are some of the anatomical changes found at autopsies? The internal organs are markedly anæmic and fatty. In all cases which I have seen fatty degeneration of the heart was present. It is often well marked on the papillary muscles, where the yellowish-white streaks of fat can be seen with the naked eye. Indeed, there is no condition which offers a better study for fatty degeneration of the heart, both macroscopically and microscopically, than does pernicious anæmia. The liver cells and the parenchyma of the kidneys are often fatty. The brain participates in the general anæmia, and we have here an opportunity to study what constitutes anæmia of the brain. I mention this because pathologists

are not agreed as to what constitutes anæmia of the brain. Edema of the lungs, which is always secondary, is not infrequent. Important changes occur in the marrow of the bones. This is best seen by making longitudinal sections though a long bone, like the femur. The marrow is red, reminding one of fetal marrow. The fat cells are replaced by large and small granular cells, and, as Wood and Cohnheim first pointed out, nucleated red blood-corpuscles are seen in large numbers. Lymphomatous growths may at times be seen, suggesting a relationship between pseudo-leucæmia and pernicious anæmia. It is not characteristic for either condition. The spleen usually remains unchanged. The aorta and other vessels present a fatty degeneration of their intima in many cases. Hæmorrhages are common on serous surfaces and retina. The most important changes occur in the blood. All observers are agreed that there is a marked diminution of the number of red blood-corpuscles. Instead of containing about five million corpuscles to the cubic millimetre there may be only two million, one million, or even five hundred thousand. It is to this destruction of red blood-cells that we owe the anæmia, the fatty changes, and the deposition of iron in various organs. A fresh section of the liver, for instance, treated with sulphide of ammonium will precipitate in the liver cells dark granules of sulphide of iron. Important chemical differences occur in the red blood-corpuscle. What these changes are will be a difficult problem to solve. The blood is unusually pale.* In pernicious anæmia the red blood-corpuscle imbibes different stains quite readily. The red blood-corpuscle ordinarily will not do this. This becomes more manifest on the living cell, and especially so of its central area. This chromatic property of the red blood-corpuscle is not peculiar to pernicious anæmia on the living cell, but will occur in other conditions and in healthy individuals. But never so readily as in this condition. Ehrlich first drew attention to the fact that quite a large number of nucleated red blood-corpuscles can be seen in the disease under discussion. But on the living cell I have since raised the question whether they are not all nucleated (*vide Medical Record*, 1893). I must confess that in some specimens I could not get a uniform staining of the central mass of protoplasm with a definite outline. And yet may not these cells have had a nucleus some time in their life history? We are not sufficiently acquainted with the life history of cells to answer that question. Caryocinetic demonstrations on the dead cell, as Luzet has done in that rare disease known as infantile pseudo-leucæmia (Jaksch), and to which attention had been drawn by this investigator and others, for purposes of differential diagnosis, appears to me of doubtful value. Luzet and his followers regard this property of karyokinesis in infantile pseudo-leucæmia as characteristic of the disease. But is it so on the living cell? These questions are *sub judice*. Quincke first drew attention to the fact that the red blood-corpuscle in pernicious anæmia will take on various shapes—*i. e.*, kidney-shaped, pear-shaped, ring-shaped, etc. His observations have been confirmed by most observers. While it is true that it is

most frequent in this condition, it is not characteristic, but occurs in other conditions. Jaksch (*Klinische Diagnostik*) has drawn attention to this fact. This poikilocytosis, as Quincke called it, is regarded by Jaksch as dependent on contractions in the cell. Friedreich and Mosler were of the same opinion. As a matter of fact this condition of poikilocytosis is nothing more or less than part and parcel of the life history of the red blood-corpuscle—its function of amœboid movement, which I could demonstrate time and again on the living cell—*i. e.*, in the urine (nephritic urine), where the red blood-corpuscle retains its vitality. In short, I must be at variance with most observers on this subject, because I have dealt with living cells, they have dealt with dead ones.

158 ROSS STREET.

A SUCCESSFUL FOOD FOR INFANTS.

RECORD OF NINETY CASES.

By NATHAN OPPENHEIM, M. D.,

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As isomeric preparations may be widely different in their physical effects, so an artificial food which according to chemical analysis approximates most closely to human milk may not at all nourish a child as he would be nourished at his mother's breast. This utter contempt for chemistry which we constantly see in very young children keeps alive the search for a food which will in the largest number of cases take the place of the natural milk supply which sickness or accident takes away. It goes without saying that a really perfect artificial food has not been found, and in all likelihood will not be found. The most that we may ask for is one that is easily accessible to everybody, that is cheap, easily prepared, and above all that nourishes the *majority* of children approximately as well as if they were not deprived of their natural nourishment. The final test after all is one of practical experience; and chemical analysis or any other scientific manipulation is merely one of the means to arrive at the desired end.

I am not going to consume space by rehearsing the constituents of human milk and the comparative analyses of prepared foods. Moreover, it is not necessary in this report to write about the *rationale* of a perfect food. Every book of reference can give these details. On the contrary, I wish merely to record my experience in ninety cases in both private and hospital practice with a food which seems to me to approach as nearly to the requirements as any I have as yet used. The preparation is so simple that any one—even an ordinary housemaid—with fair habits of carefulness can make it with ease and certainty. It is prepared thus:

Mix a full teaspoonful of flour and half a cup of cold water; to this add twelve ounces of boiling water and boil for ten minutes in a double boiler. Remove the inner vessel and add to the mixture another twelve ounces of cold water and half a teaspoonful of maltine. Allow it to stand for fifteen minutes in order to let the diastase act upon the starch. Replace the vessel in the boiling water and

* The megaloblasts (Ehrlich), unusually large nucleated red blood-cells, occur, but give us no clue to the underlying morbid condition.

boil again for fifteen minutes. This mixture, after being strained, should be added to an equal quantity of *fresh* milk. Naturally, one may change the proportion of milk according to individual cases.

Of the ninety cases, seventy-seven were babies between the ages of three weeks and fourteen months. All of them were suffering with characteristic disorders of malnutrition or malassimilation—such as gastritis, enteritis, or both, “idiopathic atrophy,” diseases of the skin traceable to visceral lesions, and one case of congested and enlarged liver of five weeks’ duration which became well with no additional treatment than dietary. Of these seventy-seven, sixty-three improved immediately and continued to thrive. Thirteen required additional treatment; and one, although fed carefully, showed no improvement. This last child was tried on a wet nurse and three other foods successively before the proper nourishment was found.

The other thirteen cases were children over fourteen months and under twenty-six months of age. They were suffering from various diseases associated with malassimilation caused by or coincident with the primary disease. All of them within varying spaces of time took kindly to this food and thrived on it. Among them are the following two, which are characteristic enough to bear recording:

CASE I.—J. R., aged nineteen months, suffering from acute meningitis. For the first two days the patient was unable to retain anything on the stomach. Then, after being made quiet with opium, he retained this food without interruption up to the time of recovery.

CASE II.—O. S., aged sixteen months, suffering from prolapse of rectum following acute enteritis. After the lower bowel had been washed out with a solution of boric acid, the patient recovered on no additional treatment outside of this food.

43 WEST FORTY-SIXTH STREET.

REPORT OF A CASE OF RENAL CALCULUS.

NEPHRO-LITHOTOMY.

By H. W. RAND, M. D.,

BROOKLYN,
SURGEON TO THE LONG ISLAND COLLEGE, ST. JOHN'S,
AND KINGS COUNTY HOSPITALS.

THE comparative infrequency of this disease in this part of the country induces me to report the following case:

The patient, a boy aged fourteen years, was referred to me by Dr. W. H. Shepard. He stated that he had at times during the past three years suffered from severe pain in his right side. It was most likely to appear and most marked during such exertion as running or jumping. At first it lasted only for a few minutes at a time, and was confined to the loin and abdomen, not extending to the testicle. It was always associated with frequent and sometimes painful urination. The urine was often dark, but so nearly as he could tell did not contain blood. Since last August his paroxysms of pain had become more severe and of longer duration, sometimes lasting all night. The most comfortable posture during these paroxysms was semi-erect, with the trunk bent to the left side. His father states that since the boy was five years of age he has been in the

habit, when walking or playing, of leaning to the right side and holding his hand to that side.

The patient was well nourished, but pale. Palpation showed the right kidney to be somewhat enlarged and very tender. During a paroxysm of pain the most marked tenderness was found to be immediately above the crest of the ilium in the axillary line and not over the kidney. Muscular rigidity in the loin and over the abdomen was also prominent during pain.

Upon these symptoms, the diagnosis of probable renal calculus was made and operation advised. Examinations of the urine made by Dr. W. C. Gardner tended to confirm this diagnosis. His report on two specimens was as follows:

No. 1.—Total quantity in twenty-four hours, fourteen ounces; reaction, acid; specific gravity, 1.020; albumin, a trace; sugar, none; total quantity of urea, 97.16 grains. Microscopical examination showed uric-acid crystals in abundance, flat epithelial cells, a few leucocytes, and some stringy mucus.

No. 2.—Total quantity in twenty-four hours, forty-three ounces; reaction acid; specific gravity, 1.014; albumin, a trace; urea, 213.28 grains. Microscopical examination showed oxalate-of-lime crystals in abundance, a few red blood-cells, some leucocytes, mucous cylinders, stringy mucus, small round and flat epithelium. Further examination showed one or the other of these crystalline deposits to be present in the urine when first voided.

November 4th.—I exposed the kidney by an oblique lumbar incision and found it enlarged and its lower end extremely hard, feeling more like fibrous tissue than normal kidney. No stone could be felt by palpation. While passing a fine needle into the organ in different directions I felt at one point a characteristic grating sensation, and on opening the pelvis found the stone at its lower extremity. No second concretion could be detected. A drainage-tube was introduced to, but not into, the kidney, the upper portion of the wound in the loin closed with sutures, and the lower part lightly packed with gauze. The calculus weighed thirty-four grains. It was of a somewhat irregularly triangular shape, two of the angles having the conformation of a mulberry calculus, the third being less roughened. At spots over its surface were deposits of crystals of uric acid. The pain following operation was quite severe and continuous. At the end of twelve hours he passed, voluntarily, eight ounces of bloody urine, but for the next twenty-four hours catheterization had to be resorted to, probably on account of the comparatively large amount of opium required to control his pain.

The most noteworthy incident during his convalescence occurred on the third day, when, after six or seven hours of entire freedom from suffering, he was seized with extreme pain in the diseased kidney and along the course of the ureter. His temperature rose rapidly from 101° to 106° F. After several hours his pain suddenly ceased and his temperature fell again to 101°. At the next urination he passed a long, slender clot, which in its course through the ureter had given rise to his pain and high temperature.

No urine passed through the drainage-tube after the third day following operation. The urine remained more or less bloody until the eighth day, after which it was perfectly clear. The wound closed entirely during the sixth week. At present, five months after operation, the boy remains entirely free from pain, and the urine shows nothing abnormal.

A New Medical Baronet.—It is announced that Dr. John Williams, of London, who attended the Duchess of York in her recent confinement, has been made a baronet.

Change of Address.—Dr. James H. Bell, from Philadelphia to San Antonio, Texas.

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ECK'S OPERATION.

In the *Lyon médical* for July 1st there is an editorial article signed by M. R. Lépine, headed *Is a Wound of the Portal Vein Necessarily Fatal?* The writer remarks that the trunk of the portal vein, by which the blood coming from the spleen, the intestines, the stomach, etc., is conveyed, is, as it is well known, only a few centimetres long. On reaching the hilum of the liver it divides into two great terminal branches, one of which is directed to the right and the other to the left; according to Testut, these two branches look as if they formed but one vessel in the transverse fissure of the liver. M. Lépine does not hesitate to affirm that a wound of this vein, whether of the trunk or of one of these two branches, is fatal, unless it is a mere puncture. The circulation of blood in the portal vein is extremely active, even during a fast. Besides the great amount of blood which passes through the vein in a given length of time, we must take its tension into account; it is evident that the higher the tension, the orifice of escape being the same, the more considerable will be the amount of blood lost, on account of the greater rapidity of its flow. Now, the tension of the blood in the portal vein far exceeds the general venous tension, on account of the interposition of the capillaries of the liver.

In case of puncture, asks M. Lépine, is lateral ligation possible? If the puncture involved the trunk itself, he says, such a ligation might be attempted, in spite of the difficulty of its execution, and it is conceivable that it might save the patient. But the operation does not seem practicable upon either of the two branches. The absolute impossibility of such a procedure when the wound of the vein is situated not on the free portion of the vessels, but upon that aspect which is hidden in the liver, will readily be understood. Let us suppose, the writer goes on to say, a large wound of one of the two terminal branches, let us premise that it is visible, and let us admit that it is possible to tie the vessel above and below the wound; this double ligation would certainly stop the bleeding, but it would also bring about, on the one hand, an interruption of the circulation in one of the lobes of the liver (that is to say, a suppression that could not be ignored of the function of a considerable portion of the organ), and, on the other hand, a notable embarrassment of the circulation in the portal vein (that is to say, a great increase in the volume of the spleen, extreme congestion of the intestinal mucous membrane, etc.). Could life be preserved, M. Lépine asks, with such derangement of the function of the liver and of the other abdominal organs? There is no experience upon which an answer to this question can at present be based.

As to the sudden total interruption of the course of the portal blood by reason of compression or extemporaneous ligation of the trunk of the portal vein, it is incompatible with life. Dogs succumb to it in two hours, and sometimes much sooner. At the autopsy the mesenteric veins are found gorged with blood, and the spleen is of colossal size.

If, in the case of ligation of the portal vein, death is owing in part to stagnation of blood in the splenic and mesenteric veins, would it be possible to avoid it by causing the peripheral end of the portal vein to form a junction with the inferior vena cava? Such an operation was proposed by Eck, a Russian surgeon, and quite recently Professor Queirolo, of Pisa, has materially perfected its technique in certain respects, and thereby rendered the operation comparatively so easy, at least in the dog, that, although not a surgeon, M. Lépine has practiced it several times lately for a special purpose—that of suppressing the physiological function of the liver. He describes the method as follows, saying that it is almost exactly that which Queirolo has described: An incision is made through the linea alba from the xiphoid cartilage to within a few centimetres of the pubes. The operator, stationed at the left, draws the intestinal coils out and to the left and exposes to view the inferior vena cava, which is tied between the *abouchement* of the renal veins and the junction of the common iliacs. At the point where the renal veins empty, the vena cava is compressed with a broad clamp, and it is then cut between the clamp and the ligature. Then the vena porta is isolated and tied as near as possible to the hilum of the liver. At a point a few centimetres above, a broad clamp is fixed, and the vein is cut near the ligature; the lower end is inserted through a ferule shaped very much like a napkin ring, and is folded back over the ferule in such a way that the lining membrane constitutes the exterior. The vein, thus disposed upon the ferule, is tied; then the whole is passed into the upper end of the vena cava and tied, so that there now remains nothing to be done but to remove the two broad clamps to cause the portal blood to flow into the vena cava. In consequence of the apposition of the lining membranes a solid scar might ultimately be formed.

Such, so far as regards its essential features, is this operation, which may easily be performed upon a dog in half an hour. Unfortunately, says M. Lépine, its results are most generally fatal, so that, even if it has been simplified, Eck's operation still remains grave. The writer remarks that it would lead him too far to go into an analysis of the causes of death. Eck's idea, he says, was that the operation might be useful in certain cases of cirrhosis of the liver, but it is very doubtful, he thinks, if anybody will ever feel justified in resorting to it in cirrhotics; assuredly it could not be made use of in cases of wounds of the portal vein, for there would be no time to perform it.

THE DANGERS OF CURETTING THE UTERUS.

THE *Union médicale* for June 19th publishes an account of a discussion recently held at a meeting of the *Société de gynécologie et d'obstétrique*, of Berlin, at which several surgeons

presented interesting facts regarding the dangers of curetting, showing how, in certain conditions, this simple operation might be a dangerous one. It had been so abused, it was said, that for several years a reaction had been going on and distinguished physicians had rejected it more and more and replaced it with uterine dressings. Curetting was an excellent operation, but it should first be indicated, then it should be well done, and, finally, the subsequent care should be attended with the greatest antiseptic precautions. Many maintained that, after uterine dilatation with intra-uterine dressings, the result was the same. This was very evident, it was said, but in certain cases this method was more tedious. When fungous growths formed a thick layer, it was more rational to destroy them with a sharp instrument and to treat the uterine cavity like an ordinary wound.

Curetting entailed several dangers, the principal of which was perforation of the uterus; but here again one must distinguish carefully. This perforation was easily done in certain conditions, and it was very rare in commoner cases. If it was a case of metritis, the mucous membrane of the uterus was especially affected. The uterine tissue was resistant, offering a solid level on which the curette might be rested, and by proceeding carefully and gently the uterine wall was not likely to be injured. This was not so when it was a case of abortion, and the uterus was incompletely emptied, so that retained portions of placenta called for intervention. Here the tissues were greatly changed, and the thickness of the uterine wall was very much diminished. The uterine cavity was of irregular dimensions, and when diseased parts had to be detached from the healthy parts with the curette, one was apt, although proceeding with caution, to make a solution of continuity and to penetrate into the peritoneal cavity. Instances of this kind were principally cited, but what constituted the peculiarity of these observations was that the rent was so large that an intestinal coil had penetrated the uterine cavity.

In a case cited by Alberti, the patient, thirty-two years old, had been attacked with metrorrhagia after a period of menstrual suppression. There was a fetid bloody flow and the neck of the uterus was dilated. The physician, with the idea that he had to deal with an abortion with retention of the membranes, performed curetting and introduced a forceps into the uterus in order to remove a piece of membrane which remained. But, instead of the membrane, he brought an intestinal coil down to the vulva. At once he applied a tampon of iodoform gauze in the vagina, and had the patient taken to a hospital, where Alberti performed laparotomy immediately. An intestinal coil, seventeen centimetres long, passing through a rent in the uterus, was so wedged in the os internum that it could not be extricated until section of the neck had been done. The coil was replaced, the uterus was closed with four Lembert's sutures, so attenuated was it, and the woman recovered.

Other cases were cited which demonstrated that these operations should not be done carelessly, but should be performed by an experienced physician. It was well known that the uterus in the condition of involution was easily ruptured;

but these accidents could not cast discredit on curetting, which, in these conditions, should be practiced as a preventive of the terrible results of infection from retained portions of placenta.

MINOR PARAGRAPHS.

AN UNMARKED QUOTATION.

In our issue for June 30th we published a communicated article entitled Potassium Permanganate and Zinc Sulphate as Injection in Gonorrhœa, by Dr. Joseph D. Farrar, of Baltimore. Our attention having been called to the matter by several of our readers, we regret to find that the last three paragraphs of the article are almost word for word the same as a passage in Dr. J. William White's excellent article on Gonorrhœa in Hare's *System of Practical Therapeutics*. We must presume that our contributor inadvertently neglected to use quotation marks.

THE AMERICAN JOURNAL OF INSANITY.

In a circular dated July 12th the retiring editor, Dr. G. Alder Blumer, announces that the *American Journal of Insanity* has been sold to the American Medico-psychological Association, and will be edited by a committee consisting of Dr. Edward Cowles, of Boston; Dr. Henry M. Hurd, of Baltimore; and Dr. Richard Dewey (in immediate editorial charge), of Chicago; and that until further notice it will be published in Chicago.

THE CHOLERA IN RUSSIA.

A TELEGRAM received by Surgeon-General Wyman, of the Marine-Hospital Service, on Wednesday, from Surgeon Irwin, one of the representatives of the service abroad, is to the effect that Dr. Irwin regards the prevalence of cholera in St. Petersburg as serious. It seems that fifteen hundred cases have been reported there since the 1st of July, including two hundred and eighteen on Monday of this week.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending July 17, 1894:

DISEASES.	Week ending July 10.		Week ending July 17.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	9	2	19	7
Scarlet fever.....	39	4	60	8
Cerebro-spinal meningitis....	0	1	2	1
Measles.....	50	4	61	4
Diphtheria.....	183	43	205	50
Small-pox.....	5	3	4	4
Tuberculosis.....	65	97	78	114

The late Dr. Samuel T. Hubbard.—At a recent meeting of the board of managers of the New York Society for the Relief of Widows and Orphans of Medical Men, the following remarks were read by Dr. Andrew F. Currier. On motion of Dr. Charles A. Leale they were ordered entered on the minutes of the board. It was also ordered that a sufficient number of copies be printed and sent to Dr. Hubbard's family, to the medical journals of the city for publication, and to the mem-

bers of the society. It was also ordered that they be incorporated in the annual report of the society:

"Died June 1, 1894, Dr. Samuel T. Hubbard, at the age of eighty-six. This is the last link which bound us to the founders of this society. Of the original members whose names appear on the list for 1842, all are gone now; the last leaf has fallen from the tree. The fathers are no longer with us, they are but a memory, a reminiscence. 'The King is dead, long live the King.' Dr. Hubbard was our Nestor, and I do not see how one could have been very long in his presence without being strongly attracted by his most lovable personality. It was not the attraction of a weak old age, it was not the attraction of an overpowering intellectuality. No, his was the vigor of the rugged oak which is in its prime when other trees around it are decaying, or of the stanch old ship with timbers sound and spars unbending after many a storm, being made of honest material through and through. He made you think of Moses, with his more than four score years, looking over into the promised land, his eye undimmed and his natural force unabated, and from the heights of his serene old age I doubt if one ever saw him looking back to the remote days of the past and making comparisons unfavorable to the present. It would not have been like him to do so, for his life, so far as I have known it or could ascertain, was one of charity and beauty. There is something about the physicians and surgeons of New York of half a century ago, a subtle quality, which it seems to me is not developed to the same degree with us. I do not mean genius, though Mott, and Parker, and Kearney Rodgers, and others of our early *confrères* possessed that. It may be that it was strong common sense, or something allied to it, a power of handling men and women to advantage, a *savoir faire*, and perhaps in our more assiduous cultivation of science we have somewhat overlooked that important qualification. Such a quality our dear friend possessed to a considerable degree. In the meetings of our society how we shall miss him! He was always present, always prompt in his attendance, genial and wise in discussion, leaning toward the broadest charity in the objects for which our society is conducted. Peace to his ashes! His memory will long be fragrant among us. 'His life was gentle, and the elements so mixed in him, that Nature might stand up and say to all the world, "This was a man!"'"

Spina Bifida Occulta with Hypertrichosis Lumbalis.—Schon (*Berliner klin. Woch.*, 1894, No. 5) reports an interesting case of this nature which was found in a thirteen-year-old girl. There was no history pointing to a hereditary tendency to deformity. Scoliosis was first noticed when she was seven years old. When she came under notice the lumbar region was covered with a dense growth of hair, and the skin was pigmented brown from the twelfth dorsal vertebra to the coccyx. The spinous processes of the fifth lumbar vertebra and of the upper sacral vertebra had not united, but a space as broad as three finger tips could be felt between them. There was no pain on pressure. It was an interesting point of her family history that a younger half-brother had a congenital dislocation of the hip.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from July 8 to July 14, 1894:*

GLENNAN, JAMES D., Captain and Assistant Surgeon, now on leave of absence, will report without delay to the Commanding General, Department of the Missouri, for temporary duty.

KOERPER, EGON A., Major and Surgeon, is granted leave of absence for one month on surgeon's certificate of disability.

CLENDENIN, PAUL, Captain and Assistant Surgeon. The leave of absence granted for seven days is extended twenty-three days.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending July 14, 1894:*

FARENHOLT, AMMEN, Assistant Surgeon. Ordered to the Naval Laboratory and Department of Instruction, New York.

KINDELBERGER, CHARLES F. Appointed an Assistant Surgeon.

Society Meetings for the Coming Week:

TUESDAY, July 24th: Medical Society of the County of Putnam (annual), N. Y.

WEDNESDAY, July 25th: Gloucester, N. J., County Medical Society (quarterly); Middlesex, Mass., North District Medical Society (Lowell).

Letters to the Editor.

BLEEDING FROM THE NOSE.

NEOLA, IOWA, June 27, 1894.

To the Editor of the New York Medical Journal:

SIR: In the *Medical Record* of June 9th appeared an article from the pen of Dr. Kohn, of New York, on Nosebleed. In this article, which is very elaborate and evidences considerable research, he fails to mention one of the most valuable therapeutic agents in this malady. I refer to the hypodermic use of ergot. I care not whether the hæmorrhage is due to traumatism, ulceration, or the peculiar dyscrasia of the system called hæmorrhagic diathesis. Ergot, thirty drops of the fluid extract hypodermically, has acted charmingly where every other measure I brought into requisition failed. One case in particular was that of a little girl, nine years of age, who was struck on the nose with a missile, and had bled for some hours previous to my arrival. I found her almost exsanguinated. She was still bleeding copiously, and in a state of tremor and great nervous excitement. Her face was blanched, not from fright, for she did not realize danger, but from loss of blood. She was pulseless and her eyes presented an anxious, glassy expression. After trying fruitlessly the customary therapeutic remedies, I endeavored to tampon, but each attempt threw the child into a nervous spasm. Concluding that radical measures were impracticable without anæsthesia, the hypodermic administration of fluid extract of ergot with digitalis occurred to me. This I suggested to my consultant. Fifteen drops of ergot and three drops of digitalis (diluted) were given. Immediately the bleeding stopped and did not recur.

Two cases of mucous patches, but in reality ulcers, from which bleeding recurred at frequent intervals—one in a young lady, seventeen years old—I have cured with local applications once a week of nitrate of silver (twenty grains to the ounce) to the ulcers only.

A gentleman I have under my care now has been bleeding for two years, at intervals of a few days to a week or so. If he becomes heated, the bleeding occurs daily. I prescribed ergot, which checks it at once. Inspection of the nasal sinuses disclosed hypertrophic rhinitis, with numerous erosions of the septum, and of the middle turbinated bones, especially of the right sinus. The electro-cautery and nitrate of silver, three grains to the ounce, to the erosions, will cure the epistaxis.

J. H. LOWREY, M. D.

Proceedings of Societies.

AMERICAN GYNÆCOLOGICAL SOCIETY.

Nineteenth Annual Meeting, held in Washington on Tuesday, Wednesday, and Thursday, May 29, 30, and 31, 1894.

The President, Dr. WILLIAM T. LUSK, of New York, in the Chair.

Extirpation of the Uterus in Disease of the Annexa.—

Dr. J. M. BALDY, of Philadelphia, read a paper on this subject. The question as to whether the uterus ought to be removed in disease of the appendages, he said, was one that was constantly being brought up, and one that he hoped would be very thoroughly discussed and a consensus of opinion elicited from the present meeting. One of the first questions that were asked was, Was the uterus useful or necessary after removal of the ovaries? The author thought there was only one use in the body for the uterus, and that was for the development of the embryo. So long, then, as the relations of the vagina and cervix were retained the uterus could be removed with the diseased annexa to the great benefit of suffering women. Where operations were done for diseased ovaries and tubes, was it the rule to find all inflammations cured, or was not every one familiar with the return of pain and discomfort? Again, were all patients cured after double oophorectomies? It was the common experience to have patients return with leucorrhœa, pain, tenderness, etc., after such operations. Hysterectomy was not a dangerous operation, and need not make the mortality any greater than the procedures usually followed. The author was able to report twenty-two successful operations for varying degrees of disease, and in all the cases the symptoms had been entirely relieved and there had been no return of disease.

Where the annexa were removed the uterus usually sank to the floor of the pelvis, producing a train of symptoms quite as disagreeable as those for which the original operation had been performed.

Leaving the uterus left a nidus for tuberculosis; this had been known to follow in a considerable number of cases. It was rare to find disease confined to one particular spot; but where disease was found in the tubes or ovaries there was usually a concomitant morbid condition in the uterus. Consequently, where laparotomy was to be done for tubal disease and the uterus was found enlarged, infiltrated, and congested, he felt that hysterectomy was justified. Of course, the mortality might be urged, but, as there really was no cure unless all diseased tissue was removed, he favored complete removal. As for the form of operation, he much preferred the abdominal method; it offered the advantage of allowing of inspection of all diseased structures, which could not be said of vaginal hysterectomy. Besides its allowing of the complete removal of diseased tissue, the drainage was better and the mortality very much less than in the vaginal operation.

Dr. FLORIAN KRUG, of New York, thought that the long train of symptoms that women suffered from primarily came from the uterus. Where the symptoms continued after an operation for diseased annexa, hysterectomy was the best means of doing away with further disease and suffering. It had seemed to him that if diseased conditions were found in the uterus and hysterectomy was not done, the operation was incomplete.

Dr. H. T. HANKS, of New York, believed that there were other conditions besides fibroid and cancer for which the uterus ought to be removed. He had found that where removal was complete the recovery was perfect, and that where the annexa alone were removed the patients had continued to require palliative treatment. He had thought at first

that the failure of cure was due to faulty technique, but after years of very careful work he had decided that the fault lay in not having removed all disease. He thought that there were three conditions in which hysterectomy was justified! First, where there was an old pyosalpinx with catarrhal or purulent endometritis; secondly, in cases of puerperal salpingitis and endometritis, with high temperature; thirdly, where an operation was being performed for the removal of the tubes and ovaries, and they were found displaced and bound down and the uterus diseased. In the latter class the uterus should be removed to get rid of all disease and also to insure good drainage.

Dr. BACHE McE. EMMET, of New York, after reviewing the history of hysterectomy, asked if it was not possible for a new disease to spring up in tissues from a change in circulation such as there would be in the uterus after removal of the tubes and ovaries. It was possible that where symptoms had continued after the removal of the tubes and ovaries the diagnosis had not been correct, or that the technique had not been perfect and that a portion of diseased ovary had been left. Another question that was to be taken into consideration was as to whether the woman wanted to be entirely relieved of her suffering and be sterile, or whether she wanted to stand a chance for childbearing. He was convinced that there were a great many cases in which the operation of complete removal was undoubtedly called for, but they ought to be considered exceptional cases. Abdominal hysterectomy was a much more difficult operation than removal of the tubes; there was much more shock and, as a rule, patients that required radical measures were much reduced in vitality, so that great care was called for in the selection of cases.

Dr. W. GILL WYLIE, of New York, had come to the conclusion that, as the difference of opinion brought out in the discussion was so slight, we must be approaching the truth in regard to hysterectomy. He objected to the operation on the general principle that every uterus ought to be removed where there was disease of the tubes and ovaries. Where there was fibroid, cancer, or a septic condition, or where the woman was over thirty-five years of age, hysterectomy was called for. He thought that where the suffering had continued after an operation it was due in most instances to the incomplete removal of disease, and that if the uterus had been treated and cured before the laparotomy the results would have been different. It was his experience to find reflex disturbances after complete removal of the tubes and uterus. A normal uterus at the menopause was not troublesome. He thought that a more careful study of the immediate and remote effects of removal ought to be made. He had noticed that there were changes in the characteristics of women after hysterectomy. In young women who had borne children the first change in the genital organs was hyperæsthesia, and finally atrophy. In some there were intractable erosions. These unpleasant symptoms did not obtain in women over thirty-five or forty. There was no doubt that the operation was of more gravity than the removal of the tubes only.

Dr. WILLIAM H. WATHEN, of Louisville, was strongly opposed to removal of the uterus unless the indications were very well marked. We all knew that many recovered promptly from laparotomy, and that cures were almost perfect. He did not believe that more than one out of every twenty would fail to be cured by removal of the tubes alone; if this operation did not answer, vaginal hysterectomy should be the operation of preference.

Dr. HENRY T. BYFORD, of Chicago, thought that, as a rule, the successful operator had not the patience for the careful treatment of the class of cases under discussion, and that the imperfect cures were due to bad methods generally. Every

means should be employed before a uterus was sacrificed, for several reasons. Atrophy followed in young women, consequently the organ should be allowed to remain, if possible, for æsthetic reasons if for no others.

Dr. GEORGE M. EDEBOHLS, of New York, thought that it was unfortunate to have put the question as it had been put, for and against hysterectomy. He did not think that the operation had been under observation long enough to justify a positive conclusion. For his part, he thought that the operation through the vagina gave good drainage, and where there was disease of the uterus impossible to cure otherwise, complete removal was the wisest plan to adopt. Where there were many adhesions and much disease, abdominal hysterectomy offered the best drainage. Where the uterus was fit to leave, ventral fixation was recommended.

Dr. A. R. CUSHING, of Ann Arbor, thought that the question of the operator came in very strongly, because there were many who could do the operation for removal of the tubes, but who would not be skillful enough to do hysterectomy. He thought that a drainage-tube, properly applied, could drain the entire pelvic cavity. He could see, everything being equal, how in many cases hysterectomy would be desirable.

Dr. JOSEPH E. JANVRIN, of New York, thought that there was one point to be decided, and that was, To what extent should the disease be allowed to go before hysterectomy was justifiable? Where there was minor disease of the uterus the speaker objected to the operation. Great care would have to be exercised in the selection of cases for operation: if, on opening the abdomen for disease, the uterus should be injured or found involved, its removal ought to depend entirely upon the judgment of the operator. As to the fatality, in the hands of a skillful operator it ought to be but slightly greater than where the tubes and ovaries alone were removed.

Dr. SETH C. GORDON, of Portland, Me., thought that the intermenstrual pain so frequently complained of, and so obstinate of cure, would be entirely relieved by hysterectomy. In these cases an operation frequently revealed no disease of the tubes or uterus, but the pain was often intolerable and something that would cure was called for. Of course, where the organs were diseased complete removal was the proper operation. In young women the uterus ought to be left as long as possible.

Dr. CHARLES P. NOBLE, of Philadelphia, had operated seventy-five or eighty times by hysterectomy, and only three or four had ever given any trouble afterward, the recoveries being perfect. The operations had all been done for chronic disease; in acute disease the condition got well promptly after removal of the tubes, as a rule.

Dr. BRYAN firmly believed that we got as good results by palliative measures as by operative means. Where there was absolute disease of the tubes and ovaries, with disease of the uterus, removal was called for. No good could follow the retention of a useless organ in the body. He was much opposed to the retention of a part of the cervix.

Dr. A. PALMER DUDLEY, of New York, believed in conservatism, but where there was pyosalpinx, with danger of infection and adhesions such as would prevent the entire removal of disease, hysterectomy was justifiable. He did not think it was necessary to remove the uterus for catarrhal endometritis. He thought that the uterus had a function beyond that of holding the fetus. He was not willing to believe that the sexual function was situated alone in the ovaries and the uterus.

Dr. BALDY said that the point he had wanted to make had been lost sight of. Hysterectomy was called for only in cases where the disease had infiltrated the walls of the uterus and tubes, and not in catarrhal conditions. He called attention to the fact that twenty per cent. of the diseases of the tubes were

tuberculous, and therefore hysterectomy was desirable. He did not like vaginal hysterectomy.

The Treatment of Face Presentations.—Dr. EDWARD R. REYNOLDS, of Boston, read a paper with this title. He said that face presentations were frequently caused by some one or more of the mechanical complications of labor, such, for instance, as a flat pelvis or small fibroids in the lower uterine segment, or might themselves be complicated by one or more of the accidents of labor, such as prolapsed funis, hæmorrhage, and eclampsia. The treatment of such cases should be primarily determined by the nature of the complication rather than by the abnormal presentation. The author confined his remarks entirely to the method of treating uncomplicated cases of face labor. His management of such cases was directed to the following points: When a face presentation was detected before the engagement of the face, and before the rupture of the membranes had occurred, there was always reason to hope for a spontaneous restoration of flexion. The obstetrician should therefore confine himself to the adoption of postural treatment and gentle external manipulation until the occurrence of engagement or the rupture of the membranes rendered a spontaneous flexion improbable. When the membranes had ruptured early, external bipolar version should at once be performed in any case in which the condition of the cervix rendered manual dilatation of the os dangerous. In ordinary conditions of the cervix manual dilatation should be undertaken immediately after the rupture of the membranes and the head flexed by the hand. The subsequent treatment should be operative, but dictated by the position. When the membranes persisted until the cervix was completely dilated an anterior position of the chin should be left to Nature so long as the progress of the labor was rapid and the foetal heart was steady, but when any irregularity of the foetal pulse or even a moderate delay at the brim had been detected, the patient should be anæsthetized and the head flexed. The posterior position of the occiput so produced should not be left to Nature, but should either be treated by version or, preferably, rotated to the front by the hand. It might then be left to Nature or treated with the forceps. A posterior position of the chin should never be left to Nature, even though the os had been completely dilated by the membranes, but should always be subjected to an immediate manual flexion. The anterior position of the vertex which resulted might then be left to Nature or the child might be extracted with the forceps. In neglected cases in which manual flexion was contra-indicated version should be chosen if it was practicable, whatever the position of the chin. If version was contra-indicated, such cases should be treated by the immediate application of the forceps to the face as such. In posterior positions of the chin this operation should always be preceded by rotation of the chin to the front. In cases in which the face presentation was due to some other mechanical obstruction, the treatment should be determined by the latter factor. The abdominal methods of delivery were never indicated in uncomplicated face labor.

Dr. C. T. JEWETT, of Brooklyn, said that it was his experience to find in complicated face presentations that, while the labor was slower, it usually terminated normally. Where interference was found necessary, it was his plan to anæsthetize the patient and explore the pelvis to ascertain the relation of the head to the parts, and correct the position at the same time. There were two classes of cases which determined the form of treatment:

Those in which the face presented above the brim and was movable, and those in which it was already engaged in the pelvis. The first class usually terminated favorably, but the speaker preferred to bring down the occiput. If the face

was fixed, postural treatment was employed to promote extension. When surgical procedures became necessary, symphysiotomy had the preference over craniotomy.

Dr. NOBLE was satisfied that where complications were likely to ensue and where version was usually recommended, symphysiotomy was by far the most rational measure to adopt.

Dr. DAVIS said that statistics were favorable to spontaneous delivery in certain forms of face presentation. Great care should be taken to prevent as far as possible rupture of the membranes. Posture would then bear a considerable relation to the conversion into an occipital position. Where the proportions between the head and the pelvis were good, normal delivery usually followed. Where there was immediate danger, podalic version was thought the best plan, and next to that symphysiotomy. The speaker had done this operation in four cases with considerable success. The separating of the symphyses gave a larger oblique diameter to the pelvis.

Dr. R. A. MURRAY, of New York, thought that a face presentation was certainly an abnormality, and that it was due to this disproportion between the head and the pelvis. When the conditions were not progressing satisfactorily he gave an anæsthetic, explored the pelvis, and rectified the position at the same time. If the case had been neglected until this could not be done, other means were adopted, and among them symphysiotomy took a most prominent place. This operation would make the mortality very much less in complicated cases of face presentations.

Dr. H. D. FRY, of Washington, favored very much the postural methods of dealing with these cases. He described a very simple way of arranging a patient in a position approaching Trendelenburg's posture, by taking an ordinary bedroom chair and laying it in the bed, front downward; a pillow was placed over the rounds, and the patient's hips were drawn up on the chair with her legs hanging over the lower rounds. In this way the patient's pelvis could be elevated while the anæsthesia was going on, a very difficult proceeding in the old way of holding up the pelvis.

The PRESIDENT thought, from his personal experience, that it was not an easy matter, in an old, neglected case, to rotate the head so as to change a face into an occiput presentation. Where every other means had been given a trial and failed, symphysiotomy could be counted upon as an effective operation.

Dr. REYNOLDS did not think that in long-neglected cases of face presentation symphysiotomy would be justified. If an anæsthetic was given immediately after rupture of the membrane, and before the waters had drained away, version could be performed. Where the waters had all escaped and the membranes had retracted this was very difficult of performance. It was his custom to adopt manual fixation in every case of face labor.

(To be continued.)

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Meeting of June 13, 1894.

The President, Dr. DE FOREST WILLARD, in the Chair.

A Suggestion upon the Preparation of the Fingers and Nails for Surgical Operations.—This was the title of a paper by Dr. OSCAR H. ALLIS. The nails, he said, formed no mean part of a surgeon's outfit. As a covering to the end of the finger they gave confidence; in the threading of needles they were often indispensable; while often, when working among adhesions, they might serve a good turn. If the nails were too long they were in the way, and if too short, a privation. A medium length of nail was an exceedingly valuable helper at times.

With some the length of nail was governed by the ability to keep it clean. Hence the nail was kept very short—much to the disadvantage of prehension, in which man excelled.

The surgical care of the nails had had its full share of attention. The nailbrush formed a part of every physician's and every surgeon's outfit. It was cheap, compact, and moderately thorough. Its disadvantages were that if stiff it was apt to scratch the hand or cut beneath the nails; if soft, it was of little value. To supplement the defects of the brush, some persisted in using the point of the nail blade of their pocketknives. Much had been written against this practice. Not only was there danger of cutting the flesh beneath the nail, but it left the surface of the nail rough, making it a ready collector of filth and less easily cleaned for a subsequent operation.

To avoid the knife the author had long used a little wedge-shaped piece of soft pine. This, when wet, frayed up, made a kind of mop, was a good carrier of soap, and enabled him to wash out under the nail. The objection to his device was that the pine too rapidly frayed out, became bulky, and required frequent trimming. Finally he had hit upon the rubber eraser. A variety was made for artists and school children that was wedge-shaped. This was ready for use as it was found at the stationer's, though if made a little sharper it was softer and more like a mop. It was pliable, soft, and an excellent carrier of soap.

For the hand, generally the old-fashioned wash-rag could not be improved upon. It was a good carrier of soap, and with it each finger in turn could be tightly caught and wrung until it was clean. With the nailbrush or hand brush only the back and front of the fingers got the scrubbing.

In addition to the implements usually deemed important for the cleanliness of the inner surface of the nails, a very valuable one was the nail itself. One thing that might be said of the finger nail as a nail-cleaning instrument was that it would not scratch the inner surface of the nail—a very important factor in the process, whether one aimed at beauty or at cleanliness.

The PRESIDENT said that bacteriological examinations had shown that even after the use of antiseptics, with the exception of permanganate of potassium and oxalic acid, germs could still be found and cultures could be made from the scrapings from the nails. It had been shown also that the constant and thorough use of soap was one of the best means that we had of rendering the hands aseptic. This method of carrying soap under the nails by means of a soft-rubber point was a very useful one. The use of the knife tore the nail and might injure the surgeon, and also left the epithelium in a condition to serve as a lodging-place for germs.

Book Notices.

Atlas de laryngologie et de rhinologie. Par A. GOUGUENHEIM, Médecin de l'hôpital Lariboisière, et J. GLOVER, Ancien intern, de la clinique laryngologique de l'hôpital Lariboisière. Avec 37 planches en noir et en couleurs, comprennent ensemble 246 figures, et 47 figures dans le texte. Paris: G. Masson, 1894. Pp. viii-48. [Prix, 50 fr.]

THE greater accuracy and efficiency of new methods of illustration and the diminution in the cost of their reproduction have, of late years, resulted in the publication of many superb atlases in various special divisions of medical literature. This has been especially the case in Germany and Austria, the countries of modern civilization where the arts and sciences have

reached the highest development. Twenty-five years ago laryngology had, in its infancy, Türk's atlas, which presented color illustrations that have never been surpassed and only of late years equaled by those of Schnitzler, Störk, Mickalicz and Michaelson, Fraenkel, Zuckerkandl, Onodi, Grünwald, and other German and Austrian laryngologists have published illustrated books and atlases of the nose and throat in black and white and in color. Colored illustrations, while more attractive, labor under two disadvantages: 1. The technical difficulties and the increased cost of reproduction by any process of printing. 2. The existence of a marked difference in individuals as to the optical impressions of colors. It is safe to say that no two persons looking into an inflamed throat have the same impression of red, for instance, impressed upon their retinas. No two persons will agree in their critical appreciation of any reproduction of the case in color.

Gouguenheim and Glover in this admirable work have avoided these difficulties by confining themselves, except occasionally in a schematic way, almost exclusively to reproductions in black and white lithographs. It must be admitted that by so doing they have made their work less attractive, possibly less instructive in certain pathological states. We have, however, no recollection of any work in French or in English that rivals it, or indeed of any serious attempt at such an atlas. There is no work in any language which has such a wide scope of illustrations in the anatomy, the pathology, and the treatment of the normal and abnormal nose and throat. The principal lithographic plates are on thin, delicately tinted paper pasted on heavy sheets. Every leaf, both of lithographic plate and of accompanying explanation on thin paper, is glued to strong linen paper at the bound edge. The plates are preceded by forty-eight pages of text on the heaviest of book paper. In this text there are forty-seven illustrations. The drawings for the plates are all made by Dr. Glover with the assistance of Dr. Latteux for the microscopical work. There are two plates containing six figures each of colored microscopic photographs, and these are the only illustrations that are technically open to serious criticism. Except with very low powers this method never gives any idea of structure to those not familiar, in the first place, with the appearances under the microscope. It has only one advantage—it allows the author to make any assertion in the text he pleases as to the character of the structure. This is quite as objectionable as the opportunity in line drawing of reproducing anything he thinks he sees in the microscopic field. These two photographic plates may be profitably compared with the two lithographic plates of "histological diagrammatic figures." In the latter we know at least what the delineator thought he saw. In the former we do not know what we see.

There are ten lithographic plates of illustrations of various laryngeal, pharyngeal, and nasal operations. This makes the work of special value to students. All told, there are thirty-seven plates containing from two to twelve figures each.

The type of the text and the wide margins are such as are used, for scientific books, only in France, and are above criticism.

The unique feature of the work, however, is the two-column plan of its plate explanations. One column is in French and the other a translation into English by Mr. Turner, an American medical student. The forty-eight pages of text, two columns each, on a 12-by-16-inch page, are in French. As the average English reader is more likely to be ignorant of technical phrases in French than he is of the current language, and as the illustrations are really the important part of the work, this device is an admirable one for appealing to a larger *clientèle* by including in it some English readers who would not otherwise be able to use the book intelligently.

The text consists of a description of the methods of preparation of the objects delineated in the plates, anatomical descriptions, clinical observations, and other pertinent remarks. If there is very little to criticize in the illustrations and in the execution of the general plan, a critic may easily find in the text, as in that of every scientific work, passages to which he may justly take exception—such, for instance, as "before the age of five, one may say that it is useless to make a rhinoscopic examination, which would result in nothing." Not only is an anterior nasal examination frequently practicable at this age, but often necessary for diagnosis. Foreign bodies are found, in the great majority of the cases, before this age. Ozæna, fibrinous rhinitis, diphtheria, and syphilis are easily recognizable lesions in the nasal chambers of infants. Dislocations of the septal cartilage are not rare by any means.

It is worthy of note that the authors prefer to open the sinus maxillaris through the canine fossa and above the alveolar border. They also prefer the external operation in disease of the frontal sinus and very properly draw attention to the uncertainty, danger, and inefficiency of perforations through the nose. We conjecture that these opinions will be those generally accepted in future text-books on the diseases of the nose. Certainly, however, the authors will not be supported by the majority of experienced laryngologists in their emphasized statement that "very marked perichondritis of the thyroid and cricoid cartilages, and solitary or confluent tubercular tumors, are especially the *primitive* forms of tubercular laryngitis." Gouguenheim advanced this opinion several years ago. It is surely rare to find such a case. It is still more difficult to disprove the existence of tubercular foci in the lungs, owing to the unreliability of negative results in physical examinations and in examinations for tubercle bacilli.

The division of the clinical aspects of laryngeal cancer into six varieties may possibly be of transient value to the student, but all such descriptions are, in the long run, vicious in their results. Nothing but personal observation and experience is of value so far as diagnosis is concerned. It is better that the student's knowledge should be somewhat vague as to details than that his mind should be filled with varieties and sub-varieties of clinical phenomena. The chances are a hundred to one that the first case he sees will not fit into any of the divisions. Skepticism and confusion inevitably result from the repetition of such experiences.

⁹ In their remarks on many points in pathological histology the authors largely adopt the views, and apparently the woodcuts, lately published by Dansac. They draw attention to the histology of syphilitic "adenoid" vegetations, a subject worthy of careful consideration. Although relying upon Dansac's work in their description of tubercular inflammation of the arytenoids, they limit their explanation of the changes in the nerves to a simple neuritis, and say nothing of the "neof ormation of hypertrophied cylindraxen."

In their chapter on operative procedures they describe the operation with cutting forceps in the tubercular infiltrations of the larynx.

Without recommending it, they speak of the ease of the operation for naso-pharyngeal adenoids with the galvanocautery snare. We may be excused here in America for being a little skeptical on that point. They do not lay any stress upon the necessity for etherization in the ordinary "adenoid" operation.

They give preference to electrolysis for the destruction of septal spurs and even for deviations. This will hardly meet with the general approval of their *confrères* in this country.

All in all, not only is this preliminary and explanatory part of the work very interesting to the mature laryngologist, but it will be very instructive to the student without by any means

filling the place of a complete, systematic work on the nose and throat. Finally, it is certain that hereafter no laryngological library can be considered complete without this valuable work, which is sure to contribute to the reputation of its distinguished authors.

Études de chirurgie infantile. Les hernies inguinales de l'enfance. Par le Dr. G. FÉLIZET, chirurgien de l'hôpital Tenon. Avec 73 figures dans le texte. Paris: G. Masson, 1894. Pp. xiv-42. [Prix, 10 fr.]

THIS is said to be the first work devoted exclusively to the subject of inguinal hernia in children. It is purely clinical in character, and is based on recorded observations of one hundred and five cases in the great service of the hôpital Tenon, where special wards were established five years ago exclusively for infantile surgery. The pathological anatomy is deduced from direct observations made upon the patients who were subjected to operation. The author believes there are two general classes of congenital inguinal hernia. The first is due to malformation, the second to simple dilatation of the inguinal canal. The first form can only be relieved by surgical measures. The second often disappears under palliative treatment. The author believes that these two forms can be distinguished clinically, and that the surgeon can determine with considerable certainty which cases may be relieved by the bandage or truss and which will require operative interference. The details of the operation are described with great minuteness and are fully illustrated. The little patients are usually discharged cured at the end of a month after the operation.

Palliative treatment is not neglected, for the author does not operate when simpler measures will accomplish an equally good result. He uses either a rubber or a steel-spring truss, and describes its method of application minutely. An appendix contains the detailed histories of the cases of operation which seem to show most satisfactory results.

Leçons de thérapeutique. Par GEORGES HAYEM, professeur de clinique médicale à la Faculté de médecine de Paris, etc. Les agents physiques et naturels. Agents thermiques. Électricité; modification de la pression atmosphérique, climats et eaux minérales. Avec 180 figures et 1 carte des eaux minérales et stations climatiques. Paris: G. Masson, 1894. Pp. viii-692. [Prix, 12 fr.]

A MORE thoroughly satisfactory work upon its subjects it would be difficult to imagine. The completeness with which each subject is considered is unusual, and yet it is not a wordy completeness, for the entire work is characterized by an economy of words and a short, sharp, and clear consideration of the questions under discussion which but add to its completeness. In every way clearness is the keynote of the book; in language, in illustrations, in classification and paragraphing, in grouping, and especially in the free use of marginal headings, this clearness becomes strikingly and delightfully apparent.

It is difficult to discriminate among so much excellence, but perhaps the most perfectly satisfactory are the chapters on thermal agents, under which is included balneology. These chapters are in some respects the most satisfactory presentations of these subjects we remember to have seen.

A highly interesting addition to the volume is a map of France and of central Europe, showing the location of mineral springs, watering places, and climatic health resorts.

To its four predecessors, the volumes on medicinal therapeutics, this volume is a fitting and a worthy companion. Its consideration has given us the greatest satisfaction.

Materia Medica, Pharmacology, and Therapeutics. Inorganic Substances. By CHARLES D. F. PHILLIPS, M. D., LL. D., F. R. S. (Edin.), Late Lecturer on Materia Medica and Therapeutics at the Westminster Hospital Medical School, etc. Second Edition. London: J. & A. Churchill, 1894. Pp. xiv-898. [Price, 21 shillings.]

THE first edition of this work was published in 1882, and since then such changes and discoveries have occurred in our knowledge of drugs and of therapeutics that, while the book remains essentially the same in scope and plan, it is otherwise much altered.

Unusually complete and valuable are the therapeutic considerations contained in it, and of special worth, too, are the chapters upon water and upon bathing.

The book is in every way an improvement upon the first edition, as well as an advance, and we await with interest the promised appearance of its companion volume on the vegetable, animal, and organic compounds.

The Year-book of Treatment for 1893. A Critical Review for Practitioners of Medicine and Surgery. By Various Contributors. Philadelphia: Lea Brothers & Co., 1893. Pp. viii-496.

IN the present volume Dr. J. Mitchell Bruce is the author of the section on Diseases of the Heart and Circulation; Dr. E. M. Skerritt, of that on Diseases of the Lungs and Organs of Respiration; Dr. E. S. Reynolds, of that on Diseases of the Nervous System; Dr. R. Maguire, of that on Diseases of the Stomach; Dr. C. H. Ralfe, of that on Diseases of the Kidneys; Dr. A. E. Garrod, of that on Gout and Rheumatism; Dr. S. Phillips, of that on the Infectious Fevers; Dr. Dawson Williams, of that on Medical Diseases of Children; Mr. Stanley Boyd, of that on General Surgery; Dr. D. W. Buxton, of that on Anæsthetics; Mr. W. J. Walsham, of that on Orthopædic Surgery; Mr. E. Owen, of that on Surgical Diseases of Children; Mr. R. Harrison, of that on Diseases of the Genito-urinary System; Mr. Alfred Cooper, of that on Diseases of the Rectum and Anus; Mr. J. E. Lane, of that on Venereal Diseases; Mr. G. E. Herman, of that on Diseases of Women; Dr. M. Handfield-Jones, of that on Midwifery; Mr. M. Morris, of that on Diseases of the Skin; Mr. H. Power, of that on Diseases of the Eye; Mr. G. P. Field, of that on Diseases of the Ear; Mr. B. J. Baron, of that on Diseases of the Throat and Nose; Dr. W. Hunter, of that on Bacteriology in Relation to Treatment; Professor W. H. Corfield, of that on Public Health and Hygiene; and Dr. Walter G. Smith, of the summary of the therapeutics of the Year 1892-'93.

The literature of the various subjects has been carefully reviewed, and the topics are epitomized in a satisfactory manner. The volume more than sustains the reputation of its predecessors.

BOOKS, ETC., RECEIVED.

Text-book of Abdominal Surgery. A Clinical Manual for Practitioners and Students. By Skene Keith, F. R. C. S. Ed., assisted by George E. Keith, M. B., C. M. With Illustrations. Philadelphia: J. B. Lippincott Company, 1894. Pp. xiv-508.

Text-book of Medical and Pharmaceutical Chemistry. By Elias H. Bartley, B. S., M. D., Professor of Chemistry and Toxicology in Long Island College Hospital, etc. Third Edition, revised and enlarged. With Eighty-four Illustrations. Philadelphia: P. Blakiston, Son, & Co., 1894. Pp. xiv-9 to 684. [Price, \$3.]

On Blinding of the Retina by Direct Sunlight. A Study in Prognosis, based chiefly upon Accidents incurred during the

Observation of Solar Eclipses. By George Mackay, M. D., F. R. C. S. E., Edin. [Reprinted from the *Ophthalmic Review*.]

Neurasthenia and its Treatment by Hypodermic Transfusions. (According to the Method of Dr. Jules Cheron.) By Ralph Browne, L. R. C. P. Lond., M. R. C. S. Eng., Physician to the Chelsea, Brompton, and Belgrave Dispensary, etc. London: J. & A. Churchill, 1894. Pp. 56. [Price, 1s.]

Teno-suture and Tendon Elongation and Shortening by Open Incision; Advantages and Disadvantages of the Various Methods. By H. Augustus Wilson, M. D., Philadelphia. [Reprinted from the *International Clinics*.]

Report on the Leprosy Question in Louisiana. By Isidore Dyer, Ph. B., M. D. [Reprinted from the *Proceedings of the Orleans Parish Medical Society*.]

Leprosy. By Isidore Dyer, M. D. [Reprinted from the *Texas Medical Journal*.]

National Control of Leprosy. By Walter Wyman, M. D. [Reprinted from the *Medical News*.]

Medizinische Märchen. Von Philander. Zweite unveränderte Auflage. Stuttgart: Levy & Müller, 1894. Pp. iv-198.

Transactions of the Massachusetts Medico-legal Society. Volume II, Number 3, 1893, and Volume II, Number 4, 1894.

Miscellany.

Hallux Rigidus.—In an article published in the *Lancet* for June 30th Mr. Mayo Collier applies this term to a stiff and painful condition of the metatarso-phalangeal joint of the great toe, usually consequent on and associated with flat foot, and, like flat foot, not necessarily confined to one foot, but more often sooner or later affecting the same joint of the opposite foot. The victims of this disorder are usually young persons at or about puberty. Males would appear to be oftener affected than females (the same being true of flat foot), no doubt because young males are more frequently employed in arduous work, necessitating more standing and the carrying of heavier weights than in the case of young females. This affection is not necessarily associated with any permanent constitutional ailment or tendency, unless it is a want of vascular and muscular tone and some impairment of nutrition. The affected foot presents a peculiar and characteristic appearance. In the first place, it is a long foot—it is an abnormally long foot for the size of its owner. Next, the foot is nearly always cold, damp, and more or less blue, the tone of its vessels, as well as its nutrition, being apparently impaired. The distortion of the foot is characteristic and peculiar, and is due to the fact that any pressure between the head of the metatarsal bone and the sesamoid bones on the tendons of the short flexor can not be tolerated. The metatarsal bone is flexed on the tarsus and is adducted to the midline from its fellows. With this the proximal phalanx is slightly flexed, but never, so far as he has observed, to such an extent as to warrant the application of the term "hallux flexus." The head of the metatarsal bone appears through the skin to be enlarged, and there is found sometimes some lipping of the cartilage of this bone at its lower aspect, in the neighborhood of the sesamoid cartilages. In early cases pain is not usually complained of until the end of the day, and then mostly after long standing or much walking; but as the disease progresses the pain is continuous, except when the patient is not standing and at night. The joint is never red, painful, or tender to the touch, except on manipulation, and gives no indication of containing fluid or of being the seat of acute mischief. Flexion

of the joint is generally readily permitted, but any attempt at extension elicits opposition and evidence of acute pain on the part of the patient. This affection is a comparatively rare one, the recorded cases being few, and the literature—even in the most recent and important works—scanty or entirely absent. The account given by Mr. Collier is the result of the close and prolonged observation of seven cases, one in a female and six in males, treated by him at the Northwest London Hospital; also of two other cases, one in a male and one in a female, treated in private practice. The first case was that of a girl aged sixteen years, presenting all the symptoms above enumerated. This case was treated after the orthodox methods of tonics, rest, frictions to the limbs, and so-termed appropriate boots. After six months of this treatment things were rather worse than better. The patient was now taken into hospital, and by advice of some of the author's colleagues the tendons of the short flexor adductor and abductor were divided and the joint was freely moved. This method of treatment was as unsatisfactory as the last. Things were now again rather worse than better. On this second disappointment he proposed to open the joint from above by a linear incision to examine it, and, if diseased, to remove the head of the metatarsal bone. This was done. Caries with marked absorption from pressure existed on the lower aspect of the head of the bone at the points of contact with the sesamoid bones in the tendons of the flexor brevis pollicis. The cartilage was almost completely worn off the points of contact, leaving the subjacent bone bare and congested. There was also some lipping of the adjacent margin of cartilage, also at spots invasion by granulations passing in from the synovial membrane. The cartilage of the rest of the bone as well as the proximal phalanx was healthy. The cartilage on the sesamoid bones was gone, and the subjacent bone was eroded. There was no fluid or extra synovia in the joint. The disease was apparently caries and absorption from pressure. This case did well. Healing took place by first intention. A movable joint with excellent range of motion and complete control was the result, and the girl is now in domestic service and can perform all her duties without the smallest impairment of the original functions of the joint. The six other cases were in young men, all below twenty years of age. In three the disease was symmetrical, necessitating operations on both feet.

Paresis of the Larynx.—A very important question in any case of laryngeal paresis or paralysis is whether the paralysis is of functional or of organic origin. The recent investigations which throw light on these cases are summarized by Dr. John Wyllie, in the *Edinburgh Medical Journal* for May. He states that a bilateral paresis of the adductor muscles, without any affection of the abductors, is almost always of functional origin, being commonly due to hysteria. If only slight, it causes hysterical aphonia, but, if it is more marked, the common variety of hysterical mutism results. If it is true that the adductor nerve cells are the first to be affected when progressive bulbar paralysis invades the nuclear cells of the vocal mechanism, then it must be admitted that in a few cases this bilateral paresis of the adductors may be of organic origin. A bilateral paresis or paralysis of the abductors, without apparent affection of the adductors, is very generally of organic origin, being most frequently the result of a lesion in the bulbar nuclei. In rare cases it is the first effect of pressure upon both recurrent laryngeal nerves or on both vagi. Some authorities, however, believe that in a few cases this paralysis may be functional. Temporary attacks, attended by the characteristic dyspnoea, were noticed by Gowers to follow an ordinary laryngeal catarrh, and he believes that the laryngeal paroxysms of dyspnoea which occasionally occur in some cases of hysteria may sometimes be due

to a temporary paralysis of the abductors, and not, as is usually supposed, invariably to spasm of the adductors. There seems to be no exception to the rule that a bilateral paralysis involving both abductor and adductor muscles is always of organic origin. Unilateral forms of paralysis, whether affecting adductors or abductors, are practically all of organic origin. There may possibly be an abductor paresis of one vocal cord only in some rare cases of hysteria. In the various forms of paralysis due to organic origin the lesion is nearly always situated in the second trophic realm of the motor tract. It is either in the medullary nuclei, or in the nerve trunks, or in their branches of distribution. These paralyses are followed by the characteristic atrophy of the paralyzed muscles following lesions of the second trophic realm.

The Prognosis in Albuminuria.—From a study of many cases of urinary diseases, Dr. G. V. Poore concludes, in the *Lancet* for June 16th, that the discovery of even a slight amount of unsuspected albumin by the acid test of boiled acid urine should lead the physician to re-examine the patient carefully, to be sure that some of the concomitants of such a condition have not been overlooked. A trifling hypertrophy of the heart, slight pallor, deficient body weight, slight increase of the tension of the pulse, ever so slight a puffiness around the ankles, a tongue slightly furred or slightly tremulous, a florid complexion, or other evidences of an old and perhaps forgotten syphilis, at once assume a serious importance. If, after repeated examinations of the urine, the albuminuria is found slight and temporary, the patient otherwise looking strong and hearty, with no suspicion of intemperance and with no flaws in the family history, the prognosis is good. If the albuminuria is slight and permanent, the prognosis is grave in the majority of cases. When much albumin is continuously found in the urine, the patient is in imminent danger, though Dr. Poore has had one such case in which the patient lived for twenty-six years. It should not be forgotten that albumin may be temporarily present in the urine of persons who afford no reliable evidence of kidney disease. In such cases it is the result of various disturbances, such as cold bathing, excessive exercises, injudicious diet, sexual excess, menstruation, leucorrhœa, and other causes.

The Bacteriology of Circumuterine Suppurations.—At recent meetings of the *Société de chirurgie*, a report of which is published in the *Répertoire universel d'obstétrique et de gynécologie* for June 25th, M. Hartmann and M. Morax presented several observations on the bacteriology of circumuterine suppurations, based on researches made in M. Terrier's service. In all cases of catarrhal or parenchymatous salpingitis, also in hydrosalpingitis, no microbes had been found, and in three cases of tubal pregnancy accompanied by hæmatosalpinx, also in three cases of retro-uterine hæmatocele with fever, no cultures had been obtained. Two cases of suppuration of the broad ligaments had shown the presence of streptococci.

In thirty-three instances the researches bore directly on purulent collections affecting the annexa. On thirteen occasions the pus was sterile; thirteen times it contained gonococci, twelve times alone and once associated with the *Bacterium coli*. In the latter case the rectum was hard and like a board, and the collection seemed on the point of opening. In four instances the pus contained streptococci, once alone and once with the *Bacterium coli* and small undetermined bacilli; again it was found associated with the *Bacterium coli* and the same undetermined bacilli, together with bacilli arranged in chains. Twice collections of pneumococci were found and once the *Bacterium coli*.

In the cases of sterile pus, one was connected with oophoritis, shown by histological examination to be tuberculous, and

the others were associated with old lesions, often gonorrhœal. It was not possible to state for how long a time these sterile suppurations had existed, two of the thirteen patients having presented marked inflammatory attacks about two months before. Inflamed Fallopian tubes containing gonococci were observed in women who had recently undergone pelvi-peritoneal attacks. They had often followed soon after the appearance of a greenish yellow discharge from the vulva. The influence of preceding pregnancy on the development of blennorrhagic salpingitis seemed evident. Salpingitis with streptococci succeeded almost immediately to lesions, sometimes traumatic, of the body of the uterus, an abortion, dilatation of a fibromatous uterus, etc. With regard to salpingitis with pneumococci or with the *Bacterium coli*, a study of the family history of the patients did not permit of making any statement in the shape of an ætiological hypothesis.

The results of the authors' researches were absolutely negative from the point of view of the relation between the condition of temperature and the nature of the lesion in the presence of which it was found. From a therapeutic point of view, and notwithstanding Schauta's and Wertheim's opinions, the examination of pus is of no use. The determination of the microbial nature of salpingitis may compel the physician to drain or to abstain from this procedure.

M. Terrier made a report on the work of M. Hartmann and M. Morax, who had examined circumuterine lesions from a histological and bacteriological point of view. In parenchymatous salpingitis no micro-organisms had been found. In suppurating salpingitis they had ascertained the presence of staphylococci, gonococci, sometimes the *Bacterium coli*, and in other cases pneumococci; finally, in certain cases, sterile pus had been found. From these facts M. Terrier concluded that drainage was necessary. Independently also of suppuration, when adhesions near the intestine had been torn, it was always prudent to drain. In a case of this kind he had opened the intestine, and he thought that in similar cases drainage might save the patients. M. Segond was very strongly in favor of drainage in cases where adhesions uniting the tubes to the intestine had to be separated.

Different Ways of carrying Children.—*La Province médicale* for June 30th contains an abstract of an article on this subject by Dr. Félix Regnault, published in *La Médecine moderne*, in which the author writes as follows: Our customs with regard to the manner of carrying children are well known. They are carried on the left arm in order to leave the right hand free for use, but this practice evidently is not the best, for, aside from the fatigue entailed, one is obliged to pay the closest attention to the child, to watch all its movements while it is thus carried. Such a custom could not prevail among savages and half-civilized nations, where the necessities of existence do not permit of the same freedom from care, and where the women are obliged to work in the fields. The French peasants, says M. Regnault, leave their children in the cradle, and, if necessary, tie them in. This is the custom also in Armenia, in Morocco, and in Tartary. In Russia and among the Ostiaks the baby is put into a light willow basket, which is carried on the back and held firmly by means of straps. The custom among the Africans is still better. There the child is carried directly on the back and held firmly in place by means of a piece of cloth which is brought forward and fastened in front of the chest. In this manner the child is always carried by the mother whether working in the fields or carrying water jugs on her head.

This custom has spread to other countries, and it has become a constant practice among the Japanese, who, it is well

known, are the most careful people with regard to their children. M. Vidal, in the *Revue d'anthropologie* for 1874, gives many interesting details on this subject. From the time of the child's birth until it is three or four years old it is carried always, and everywhere, on the back. A garment called *ki-mono* is of such ample dimensions that when the folded sides are spread open it forms between the chest and the back a large funnel-shaped space into which the child is put, the head alone showing above the edge of the garment; the hands and arms are free, so that the child's movements are not restricted, and thus there is little danger of a fall or a blow. In this way, too, the baby is not exposed to cold, the mother's body giving sufficient warmth. Another advantage to be derived from this way of carrying babies is that the mother has her hands free to perform her daily work.

It is quite common, says the author, to see children of five or six years carrying their younger brothers and sisters in this manner on their backs. European children also are carried in this way by native nurses, and they do not seem to find it uncomfortable.

Among other nations the custom varies, and the hip, usually the left one, supports the child's feet. In this case a band holds the baby in place and leaves the left arm of the person who carries the child free. Among the Malays this band is a piece of cloth which is fastened on the right shoulder; among the Niams-Niams it is a large piece of hide which is crossed over the left shoulder and passes under the right one. When the women carry anything on their heads the back is chosen for the child, and when objects are carried on the back the child is placed on the hips, where it is fastened with bands. This custom prevails among many negro races. On the Congo coast objects are put on the head, and the child is carried on the back. In the interior, where there is more danger of accidents occurring, loads can not be carried on the head, as they would be exposed to a fall, consequently they are put into a basket on the back, which is fastened with a large piece of goat skin on which the child is seated.

M. Lapicque, in his voyage to the Andaman Islands, has also seen the women of that country carrying children on the left hip and a basket on the back. In this way, says the author, have savage nations solved the question of being able to carry on their work and at the same time watch over and take care of their children.

The Treatment of Styes.—The *Gazette médicale de Paris* for June 30th publishes an article on this subject by M. Ripault, who recommends the repeated applications of antiseptic compresses. After the pus has formed an incision is made and slight digital pressure is employed to aid in the expulsion of the core; hot compresses accomplish the rest. In order to prevent a return of the symptoms, an antiseptic ointment consisting of seventy-five grains of vaseline and three quarters of a grain of yellow mercury oxide should be applied to the eyelids every night, and both morning and evening the eye should be bathed with a warm solution of boric acid in water or of corrosive sublimate, without alcohol, in the proportion of a grain and a half to fifteen ounces and a half of water.

The preventive treatment is based on the ætiological diagnosis. The conjunctiva, the lacrymal ducts, and derangements of refraction are treated; the patient is instructed to take special precautions (using green protectors, avoiding scratching the eyes, etc.) when his work exposes him to any irritating action, above all if he is subject to inflammation of the eyelids. The general condition should never be neglected. If there is a furuncular diathesis, alkaline preparations should be employed, such as sodium arsenate or bicarbonate, and tar water; if the

patient is of a lymphatic temperament, tonics and iodized preparations should be employed, and finally, at times, an antidiabetic diet may be useful. The treatment should then be not only curative, but above all preventive, and should be local and general.

The Effects of the New European Military Firearms.—

The *Mercredi médical* for June 27th publishes an abstract of a paper on this subject read at the Rome Congress by M. Coler and M. Tchjerner, of Berlin, who, by the favor of the Prussian Government, have been able to study the effects produced by projectiles of small caliber of the new firearms adopted by the European armies. They have experimented with full charges at variable distances of from twenty-five to two thousand metres or more. They compared the results of their experiments with observations made of soldiers who had committed suicide. In the first place it was ascertained that the balls, when they passed through the soft parts, did not show any indentation, but when they struck the hard bones they were indented; rarely they became lodged in the tissues. When the balls are shattered the pieces may penetrate deeply, cut the vessels, and give rise to much trouble. The balls used at present are very long and have the tendency, in their course, to pass through crosswise, thus enlarging the passage and the opening of departure, which is always larger than that of entrance. This rotation causes the most disastrous results. Although the balls become heated in their course, the temperature is not sufficiently elevated to cause burning of the tissues.

With regard to the organs injured, it has been remarked that wounds of the soft tissues, like pulmonary tissue, are not so serious as those of other organs. In the abdomen, when the liver and the spleen are injured, the effects are more serious; the parts are torn and crushed, and the splinters are scattered far from the seat of the injury, generally perforating the intestine at several points.

Among suicides, all wounds penetrating the abdomen terminate in death, while the majority of wounds of the lungs are cured. When the skull is struck from a short distance, it is shattered and the brain protrudes at all parts. When empty skulls are shot at, the perforations made are simple, without splitting. The bones are fractured and crushed and the splinters are driven in different directions, constituting projectiles in themselves. When the distance is greater, from a thousand to fifteen hundred or two thousand metres, the bony lesions are simpler and the splinters less numerous.

The authors conclude that wounds made by the new firearms are more serious than those produced by the old ones, and that the number of wounded soldiers will certainly not be diminished in future wars. They have seen the disastrous effects of these new firearms, and think that war will be more horrible than ever and the physician's responsibility greater.

Street Vendors' Ice Cream.—"An ice cream," says the *British Medical Journal*, "which contained four fat lice and numerous colored hairs shaken out of carpet is not exactly an appetizing dainty. These, however, were among the ingredients of an ice purchased recently by Mr. Albert Smith, analytical chemist, in Islington. In another sample he found traces of lead and antimony. It appears that some of these ice creams are made of boiled corn flour, water, and sugar, with a little tartaric acid to give tartness, and a little aniline dye to impart a color pleasing to the youthful eye. The presence of lead and antimony is to be accounted for by the action of the tartaric acid on the metallic compound of which the freezing cans are made. But Mr Smith is probably right that the risk of infection is still more serious than the liability to poisoning by lead or antimony or the arsenic which may be present in the aniline dyes. He

relates how he watched a little girl, whose face, hands, and ears were covered with sores, purchase an ice cream, and lick out the glass in the customary fashion. The vendor did not wash or even wipe the glass, but at once filled it and handed it to another young customer, who repeated the process of sucking and licking. Last summer a case occurred in which it was proved that milk used in the making of cheap ices was from a source responsible for the dissemination of typhoid fever. It is clear that an industry which consists in the vending of an article of food which, under present circumstances, may contain anything from a louse to a typhoid bacillus needs to be brought under the most careful surveillance of sanitary authorities."

A Masonic Home for Consumptives.—With the consent of the Grand Master of the Grand Jurisdiction, A. F. and A. M. of New Mexico, the Montezuma Lodge, of Santa Fé, has adopted a resolution setting forth "that the death-rate from consumption is increasing at an alarming rate all over the world; that the benefits of climatic cure are now universally recognized by physicians; that the most perfect climate is found at Santa Fé," and inviting the Masons of the United States and Canada to co-operate with Montezuma Lodge in the erection there of a national home for consumptives, to be governed and maintained by Masons for benevolent and charitable purposes.—*Jour. of the Am. Med. Assoc.*

Myrrholine, according to the *Revue internationale de bibliographie médicale, pharmaceutique et vétérinaire*, is a solution of myrrh in its own weight of oil. It is said to have been found useful in tubercular laryngitis, given in capsules each containing three grains of myrrholine and from four and a half to five grains of creasote. An ointment of one part of myrrholine and two parts of vaseline is reported to act favorably in cases of eczema about the nostrils.

The Diagnosis of Tuberculosis by Microscopical Examination of the Blood.—The Colorado State Medical Society offers a prize of \$100 for the best essay on this subject, open to universal competition. Essays should be handed in, under the usual seal of secrecy, to Dr. S. A. Fisk, of Denver, on or before April 1, 1895.

A Local Anæsthetic Solution.—Dr. J. H. Lowrey, of Neola, Iowa, speaks favorably of the following combination:

Cocaine hydrochloride,	{ each..... 16 grains;
Resorein,	
Distilled water.....	2 ounces.

He has found that the use of this solution is not followed by the systemic disturbances that cocaine alone sometimes produces.

The British Medical Association will hold its sixty-second annual meeting in Bristol on Tuesday, Wednesday, Thursday, and Friday, July 31st and August 1st, 2d, and 3d.

The Action of Spermine.—At a recent meeting of the *Société nationale de médecine de Lyon*, a report of which is published in the *Lyon médical* for May 6th, Dr. Pöhl, of St. Petersburg, read a paper on the therapeutic effects of spermine, in which he said that spermine did not have its origin exclusively in the internal genital organs of the male. He had found it in the pancreatic tissue, in the thyroid gland, in the thymus, and in the ovaries, as it was a substance which entered into the composition of the normal blood of men and women. Spermine, says the author, possesses to a great degree the property of accelerating the process of oxidation, which fact is demonstrated by the following statements:

1. In the presence of spermine metallic magnesium may be oxidized by a solution of the chloride of any one of several

metals (copper chloride and gold chloride, for example); moreover, this oxidation, instead of being at the expense of the oxygen of air, is at the expense of the oxygen of water, which is decomposed by the catalytic action of spermine.

2. Blood which has lost its oxidative qualities by the action of chloroform, protoxide of nitrogen, etc., may regain them if a small quantity of spermine is added.

3. Professor Tarchanoff's experiments on animals (of which the internal process of oxidation was diminished partly by section of the spinal cord, partly by poisoning with chloroform, alcohol, etc.) demonstrated that the tonic effect of spermine showed itself accurately in the cases where the intra-organic process of oxidation was diminished.

4. The therapeutic observations of more than fifty writers demonstrate that the dynamogenic effects of spermine show themselves in cases where the affection is due to a self-intoxication; for example, in anæmia, neurasthenia, scurvy, diabetes, cachexia, etc.

5. The analysis of the urine before and after subcutaneous injections of spermine shows that the coefficient of oxidation is exaggerated.

6. Experiments which have demonstrated the effect of spermine on the biological and chemical qualities of the choleraic vibrio prove that the process of reduction (the appearance of cholera red and the formation of ptomaines), due to choleraic bacilli, is suppressed in the presence of spermine.

These facts, says Dr. Pöhl, prove that spermine represents that substance in the organism which sustains the intra-organic process of oxidation, that which is known as intracellular respiration. The cellular changes give rise to incomplete products of oxidation (of regressive metamorphosis), of which the leucomaines constitute the large part, according to Armand Gautier. Under normal conditions the leucomaines undergo oxidation owing to spermine, and are partly burned, partly eliminated by the veins and the other emunctories. But in abnormal conditions, when oxidation is imperfect, the leucomaines accumulate and prevent the tissues from performing their functions in a normal manner. The first consequence of this diminution of oxidation would be self-intoxication, which is an efficient cause of a great variety of morbid conditions and a predisposing cause of the appearance of infectious diseases. Consequently, in normal oxidation (in the activity of spermine) lies the defense of the organism against self-intoxication—that is, against a long list of maladies.

Spermine shows its catalytic effects only when it is in a soluble condition (*corpora non agunt nisi fluida*). In some cases spermine is transformed into an inactive substance, taking the form of an insoluble phosphate, of which the crystalline modification has been known for a long time—these are the Chareot-Leyden crystals. This phenomenon has a place in the organism, when the alkalinity of the blood is diminished, and, as the destruction of lecithin and of nuclein is accompanied with the formation of phosphoric acid, spermine is transformed in these conditions into phosphate of spermine, which is insoluble and inactive. The intra-organic process of oxidation and the effects of spermine are in reciprocal and direct relation with the alkalinity of the blood. In these cases of self-intoxication, subcutaneous injections of active spermine soluble with the increase of the alkalinity of the blood (by the use of Vichy, etc.) always produce a therapeutic effect.

Our organism, says the author, certainly elaborates, in addition to spermine, other substances having curative qualities, and the *vis medicatrix nature* is probably proportionate to the formation of such products. The immunity of the organism against many diseases probably consists in the normal energy of the process of oxidation. Dr. Pöhl concludes, then, that, if

life is an incessant struggle against death, spermine is probably, for the tissues, one of the most efficacious agents in this resistance.

Variable Forms of Bacteria.—Though like produces like, the simpler forms of life take their own time and require suitable conditions to reappear in any one of a cycle of protean forms. Some instances of the ability of microbes to make use of their opportunities are given in a review of the morphology of bacteria by Dr. E. Klein in the *Quarterly Journal of Microscopical Science*. He states that bacteriologists now recognize that the shape under which a particular bacterial species presents itself depends both on the medium in which it grows and also on certain inherent qualities of the organism itself. The bacilli of human typhoid fever, swine erysipelas, or sewage are always cylindrical cells, but may grow either singly, in pairs, or in shorter or longer chains. The most common organism of putrefaction, the *Proteus vulgaris* of Hauser, may assume nearly every form from spheres to spiral threads. *Bacillus prodigiosus* varies from spheres to cylinders. Not only do some species of bacteria appear under unstable shapes, but some which have a definite shape in a certain medium change their shape when growing in a different medium. The group of bacteria comprising the bacillus of the Middleborough pneumonia, of fowl cholera, of fowl enteritis, of *Freuenseuche*, of *Wild-seuche*, of swine fever, of grouse disease, the *Bacillus coli*, and others, have many points in common in their culture characteristics in the different media, and there is a close resemblance in the acute septicæmic infection which they are capable of producing in rodents, but, while some preserve the same definite shape when grown in one species of animals or one kind of medium, this shape changes in other animals or in other substances. The microbe of diphtheria, of tuberculosis, and of anthrax fever, under very favorable conditions of growth either in gelatin or in the human body, develop not only the typical forms, but also many long threads, sometimes branched, and generally with terminal segregations of protoplasm which may be vacuolated, conditions which are also found in the thrush and other mycelial fungi. Dr. Klein is certain that these are forms of active growth and not of involution. He concludes that, as these three microbes vary from the characteristics of desmobacteria, they can not be so well marked, typical bacilli as has been assumed. Under many conditions they have the morphological characters of typical bacilli, but under other conditions they easily revert to or assume forms which show their evident relations to the saccaromyces or other mycelial fungi.

Classes of Infectious Diseases.—The widespread confusion between the terms contagious and infectious, well illustrated in the popular belief that there is great personal danger in merely being near to patients who are suffering from cholera or from typhoid fever, has prompted Dr. W. H. Thomson to propose in the *Medical Record* for June 2d the following classification: Each of the three classes of communicable, non-communicable, and septic infectious diseases is due to the presence of specific living microbes in the body. Such communicable diseases as small-pox, tuberculosis, and Asiatic cholera originate from an animal body. The non-communicable infectious diseases originate not from an animal body, but from a place or thing, as ague or yellow fever. Communicable diseases may be contagious or non-contagious. The contagious communicable diseases are those in which simple proximity to the patient infected with them is sufficient to communicate the infection to susceptible persons. Examples are scarlet fever, measles, small-pox, typhus fever, diphtheria, mumps, and whooping-cough. It is therefore necessary to isolate those sick with them in order to prevent infection. In the non-contagious

communicable diseases the communication is not by simple proximity, but by intermediate means. Therefore the isolation of the sick with them is neither needful nor effective when compared with measures directed against the intermediate means of communication, as in Asiatic cholera, typhoid fever, and tuberculosis. In the septic infectious diseases the infection gains entrance through a wound or damage by inflammation or otherwise of the skin or of a mucous membrane, as in the surgical infection wounds, erysipelas, tetanus, and hydrophobia. It is possible to prevent all infectious diseases by disinfective measures applicable to each, whether the illness is communicable, non-communicable, or septic.

The Probable Origin of the Red Blood-corpuscles.—The supply of red blood-corpuscles is apparently maintained from the nucleated red blood-cells of the bone marrow, the structure of which is described by Dr. Robert Muir and Dr. W. B. Drummond in the *Journal of Anatomy and Physiology*. In the marrow of man and other mammals the supporting stroma is very slender, and at the periphery it is arranged in one or two layers of connective-tissue corpuscles with fibrils between. From these layers delicate nucleated filaments press inward and are connected with the blood-vessels and fat cells. There are usually in the center of the marrow a single artery and a much larger vein. The branches of the artery terminate in what may be called arterial capillaries, and these empty into rather wide channels which may be termed venous capillaries, though they do not have a complete endothelial lining. The bulk of the bone marrow is composed of spherical, colorless, granulated marrow cells. There are also many nucleated cells containing hæmoglobin, which are larger than red blood-corpuscles, and are termed erythroblasts. Giant cells are found with a single lobulated nucleus appearing as many in one focus of the microscope. As the parenchyma is nearly cut off from the venous blood, the circulation through the marrow must be slow. Dr. W. H. Howell, of Johns Hopkins University, maintains that the marrow cells are embryonic cells whose function is to multiply by division and become nucleated red blood-cells. During their successive divisions the cells become smaller and pass from the type of the marrow cell to that of the nucleated red blood-corpuscle. But Dr. Muir considers that the marrow cells are of the leucocyte order. The red corpuscles found in the marrow substance have probably just lost their nuclei. Nucleated red corpuscles are not found in normal blood, but after severe hæmorrhage in the human subject and in animals they may appear in the general circulation, in which case they stain more deeply with methyl blue than the ordinary red blood-corpuscle. Dr. Muir concludes that the nucleated red cells of the bone marrow are probably in free communication with the blood stream, but normally do not enter it, being retained in position by mutual cohesiveness, even after they have lost their nuclei. In this position they gradually acquire the physical properties of the adult red blood-corpuscles, and then pass into the flowing current. He reasons that after severe hæmorrhage there occurs a dilution of the blood, in respect to the red corpuscles, and therefore the corpuscles are loosened in the vascular channels of the bone marrow where they are normally closely packed, and thus the normally stationary red cells may pass into the general circulation. The richness of the blood in corpuscles may be looked upon as determining the stability of the cellular arrangement in the marrow. Poverty in blood-corpuscles may not only induce certain cells to enter the circulation, but also stimulate other cells to proliferate, as it is thoroughly well established that the multiplying cells become smaller and pass from the type of the marrow cells to that of the nucleated red blood-cell, which so closely resembles the red blood-corpuscle.

Lectures and Addresses.

LECTURES ON THE DIAGNOSIS OF ABDOMINAL TUMORS.

By WILLIAM OSLER, M.D.,
PROFESSOR OF MEDICINE, JOHNS HOPKINS UNIVERSITY.

LECTURE VI.—TUMORS OF THE KIDNEY.

(Concluded from page 69.)

CASE LXIII. Pains in Left Side, with Development of Tumor, which gradually Disappears.—Mrs. X., aged forty-six years, admitted to Ward C, October 23d, complaining of intermittent attacks of pain in the left side, and a swelling or lump which occurs at the same time.

The family history is good. She was always very strong as a girl; married at twenty-two; has had three children, the youngest now ten years old. Was never very large during her pregnancies. Has been always regular; has no uterine disease; still menstruates. Of late years she has had a good deal of mental worry and trouble, and has had a very busy life, actively engaged in housework.

The attacks of which she complains date as far back as eight or nine years ago, and consisted then of pain in the left side occurring once in one or two months, which was, however, quite bearable. It sometimes followed imprudence in diet; sometimes after a jolting ride. The worst attack, shortly after the trouble began, followed a day's journey on the railroad. The pains were never so severe as to require morphine, but there was a sensation of uneasiness and of discomfort and aching in the left side. Nearly four years ago she first noticed a swelling beneath the ribs on the left side. It was not large and usually only lasted a day or two. She can always tell for twenty-four hours before an attack comes on from curious dull, heavy feelings all over her, and then the backache and dragging sensation in the left flank begin. Within the past year or so the attacks have been more frequent, and not a month has passed without them. The lump, too, has become more prominent during the attacks. Lately they have recurred as often as every week, and for the past month they have begun regularly on Sunday. She does not think that any special diet brings them on, nor has she noticed lately that exercise or jolting has any influence. The urine has been clear; she has not noticed any special difficulty, nor has she had any trouble in micturition. The bowels are sometimes constipated, and more particularly at the time of the attacks.

Patient is thin, weighs only one hundred and five pounds, and is pale. The following note was made at noon of October 24th: The abdomen is flat—not specially scarred. On palpation it is everywhere soft until toward the left costal margin, where a large mass can be felt occupying the left side of the abdomen, and projecting apparently from beneath the ribs. Anteriorly it extends into the umbilical and epigastric regions as far as the middle line. The lower margin, rounded and smooth, is nearly at the level of the anterior superior spine. At first it was thought possible from its situation to be an enlarged and somewhat irregular spleen. It descends with inspiration, and during the deepest breath the hand can be passed over it, and the mass in this way held down. It can readily be felt from behind, and on bimanual palpation can be grasped between the hands, and on firmest pressure below the ribs behind the mass can be pushed forward so as to lift distinctly the abdominal wall. The lower and posterior surfaces appear to be irregular. The sen-

sation given on deep pressure is of an elastic resistance. On percussion there is tympany over the mass in front, a flat tympany in the midaxillary line, and dullness behind. The right kidney is distinctly palpable and descends far enough on inspiration to be held down. For the first twenty hours in hospital patient passed only 380 c. c. of urine, clear, straw-colored; specific gravity, 1.006; slight trace of albumin; no sugar; a few leucocytes and flakes of epithelium.

Patient menstruated from the 25th to the 28th. The tumor mass was present on the 25th; no examination was made on the 26th. On the 27th the tumor had disappeared entirely. The abdominal walls were so relaxed that palpation could be freely and thoroughly made.

The left kidney could be felt on deep palpation. It did not appear to be in any way enlarged; it felt, in fact, rather small and round. A daily note was then made on the patient and the urine carefully measured. The patient says she can always tell a day or so before the attack comes on by feeling dull and the onset of backache.

From October 28th to November 6th the daily note with reference to the left kidney was negative. It was felt every day. She seemed to be doing very well; gained in weight, and had not so much tenderness.

November 7th.—Last night patient had a heavy feeling in the abdomen after eating, and a little distress in the back, as if an attack might be coming on. This morning, however, she felt well again, got up, went to town on a street car, walked about a good deal. On her return after dinner the usual symptoms ushering in an attack appeared—slight headache and feeling of sluggishness, and a dull, gnawing ache in the left side, with a feeling of fullness. Patient expresses it that she is entirely "taken possession of by the occurrence," is listless, and if it comes on while she is up and about, her knees tremble under her and she feels that she must lie down. She never, however, is nauseated or sick at the stomach.

An examination was made at 11.30 A. M. on the 6th, and the following note dictated: "On drawing a deep breath the left kidney feels a little larger and more prominent than previously, but is not tender." To-day (7th) the examination was made at 3 P. M. The abdomen is slightly distended; the left side more prominent than the right. The tumor mass previously existing again occupies the entire left flank, extending anteriorly almost to the level of the umbilicus. The anterior border is hard, somewhat abruptly defined, and a depression can be felt along the margin. On deep inspiration the mass descends, the lower end almost reaching the anterior superior spine. During the deepest inspiration the fingers can be passed above its upper margin, and the tumor can be held entirely below the level of the tenth rib. From behind, the posterolateral surface of the tumor is somewhat irregular. With the right hand in the renal region behind it can be readily pushed forward so as to cause a prominent bulging in the left half of the umbilical region. The right kidney is readily palpable and presents no change.

8th.—The tumor mass is not nearly so large this morning.

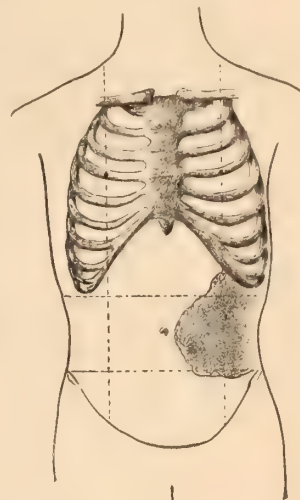


FIG. 41.—Position of the tumor mass in Case LXIII.

It is firm, rounded, readily palpable between the two hands, and is still large enough to be made to project beneath the skin when lifted from behind. She says she has not nearly so much uneasiness and distress in the side to-day.

9th.—The mass is smaller than yesterday. She has now no pain.

10th.—The tumor has disappeared. The left kidney is readily palpated; feels smaller than the right. A careful estimate was made of the quantity of the urine each day, and the total solids, the reaction, and the specific gravity. From the 28th of October to the 7th of November, during which time there was no tumor, the amount of urine ranged from 1,000 to 1,900 c. c. For the twenty-four hours ending November 7th the amount was 1,900 c. c. On the 8th there was only 1,100 c. c.; on the 9th, 820 c. c.; on the 10th, 1,200 c. c.; on the 11th, 1,210 c. c.; on the 12th, 980 c. c. The urine has always been clear, is usually acid; the specific gravity ranges from 1.010 to 1.017; generally yellow, straw-colored, and contains a few leucocytes. There was no special change in its appearance or microscopical characters, either on the 7th, 8th, or 9th, when the tumor was present, or the 10th, 11th, and 12th, after it had disappeared. The patient went to her home on the 11th. She had subsequently kept account of the amount of urine, which has ranged from two and a half to five pints daily. She had an attack in which the tumor was present on the 17th and 18th, on which days she passed two and a half and three pints of urine, and on the 19th, 20th, and 21st there were only two, three, and three pints. On December 1st and 2d there was again an attack with the tumor present. The amount of urine was three pints on both days, and on the 3d, 4th, and 5th it was three, three, and five pints.

December 16th.—This patient was seen last to-day. She has been better in many ways, but for the past week has not been feeling at all strong, and has been very nervous. The tumor has been present, she states, for about two days. On examination the tumor mass was distinct, though small in comparison with the previous notes. It extended as far forward as the parasternal line, and could be readily moved on bimanual palpation. On deep inspiration the fingers could be pressed above it, and it can be held down. It was distinctly lobulated. In the anterior axillary line it felt superficial, and it could be made to bulge beneath the skin.

A carefully adapted pad and bandage have given much relief, and the attacks have not recurred so frequently. She has also gained in weight and is in every way better.

Additional Note, February 17, 1894.—She has been very much better since last note, and has only had three attacks; one severe, requiring opium. In all three the tumor mass, however, was present. There has been no attack for four weeks, the longest intermission which has had for months. Her appetite is good, and she now weighs one hundred and twenty-two pounds.

These cases have the following points in common: The patients have borne children; there have been attacks of colic-like pain in the left side, during which a tumor develops, to disappear in the course of a few days, sometimes with an increase in the amount of urine. The diagnosis seems perfectly clear. There is no other condition in which a tumor in the flank appears and disappears in this way. Intermittent hydronephrosis, as is well known, constitutes the most remarkable form of phantom tumor; to-day you may find the side of the abdomen occupied by a large, firm mass which you can grasp between the hands, and which may be so prominent as, when pressed forward,

to lift the skin of the abdomen in the region of the navel, and to-morrow you may be completely nonplussed to find that the tumor has disappeared, leaving not a trace behind. There are remarkable cases in which this history repeats itself throughout a series of years, as in the case of congenital hydronephrosis to which I referred—a young man, aged twenty-one years, who had had from his second year the intermittent development of an enormous abdominal tumor which disappeared with the passage of a large quantity of urine.

The subject is one to which much attention has been given of late, and you will find in the monograph of Landau, and in the works of Morris and Newman, excellent descriptions of intermittent hydronephrosis. The whole question has been most thoroughly considered in the monograph which I here show you,* in which the authors have collected from the literature seventy cases. I see that there has been published recently in London a brochure on the subject by Knight, which has not yet reached me.

A large proportion of all the cases are in women, who are the subject of it at least four times more frequently than men, in about the same proportion as they are more liable to movable kidney. The left side is more frequently affected than the right. Of forty-nine cases in the list of Terrier and Baudouin available for analysis on this point, thirty were on the left side and nineteen on the right.

The general symptoms of intermittent hydronephrosis you have gathered from the report of the cases. In the intervals the patient may feel perfectly well, or may have only the mental worry consequent upon the uncertainty of the nature of the trouble. From this cause Case LXIII lost rapidly in flesh. Case LXI suffers much with the nervous features so often associated with enteroptosis. As a rule, and this is an important point in the diagnosis, the health is good, and the patients are very comfortable, experiencing only, perhaps, a sense of weight or dragging in the side, more rarely local or radiating pains. The examination of the side may be negative; more commonly there is a movable kidney, sometimes feeling quite normal, but it may feel small, as in Case LXIII, or swollen, large and tender. There are instances also in which a sac may be felt, presenting indurated areas, or it may be partly filled. The urine is clear and presents usually no abnormal ingredients; in some cases there is a slight turbidity from pyelitis.

You will have noticed in the reports that the attacks recur with variable frequency. Among the circumstances liable to cause them are sudden and violent exercise, the jarring and jolting of riding and driving, any fatigue, mental emotions, and errors in diet. In Case LXIII the patient assured us that she could at any time bring on an attack by a ride in a jolting street car. It is important to bear in mind that indiscretions in eating may cause them. The patient of Dr. Palmer Howard's could at any time bring on a severe renal crisis by taking a heavy supper and a bottle of Bass's ale. The onset is usually manifest to

* *De l'hydronephrose intermittente*, par Félix Terrier et Marcel Baudouin. Paris, 1891.

the patient by pain and uneasiness in the affected side and general restlessness. In Case LXIII the patient knew at once when the tumor was developing by the gnawing ache in the left side, the slight headache, and the feeling of sluggishness. The attack may have the severity of nephritic colic and require morphine for its relief. There is rarely fever, nor do I see any cases reported with recurring chills, the absence of which is somewhat remarkable, considering their frequency in affections of the pelvis of the kidney. Nausea, vomiting, diarrhœa, and distention of the abdomen may be present. The attack may last from a few hours to the greater part of a day; the pain gradually passes away, and the patient feels only a soreness and heaviness in the side. The tumor gradually develops during the attack, and may increase in size for several days after the intensity of the pain has subsided. The three patients who have been under observation had learned to recognize the tumor, and knew at once when it was present. In the frequent examinations which I have made of Cases LXII and LXIII I never found them in error on this point.

The tumor itself offers no characters which would call attention to the existence of intermittent hydronephrosis. It has the situation and relations of a kidney tumor, with perhaps a greater mobility than usually met with in neoplasms or pyonephrosis. When small, it may be very mobile, and some have detected a difference between the renal and the pelvic portions of the sac, separated by a groove. It is deeply placed, rounded, and from behind can be lifted forward from its bed. The median and lower surfaces are smooth, sometimes irregular, but there is no sharp margin or rounded edge. Pressure is often painful, and causes at times an urgent desire to urinate. Fluctuation is rarely obtained, but there is often a sense of elastic resistance. The colon, small bowel, and part of the stomach usually lie in front of the tumor and mask the percussion in the outer half of the umbilical region or in part of the flank.

During the existence of the tumor the amount of urine passed is, as a rule, greatly diminished. After persisting for a variable time the tumor may disappear suddenly with the greatest relief to the patient, and when the evacuation is rapid there is always a notable increase in the quantity of urine. In not one of the three cases which we have considered was the discharge brusque, as in some instances which are on record, but the disappearance of the tumor was gradual, and the increase in the amount of urine, though noted in two of them, was not striking.

With the disappearance of the tumor the patient again becomes quite comfortable, and may remain so for weeks or even months without a recurrence of the attack.

The recognition of the condition, when fully established, is comparatively easy. The pains, the development of a tumor in the flank, its disappearance, usually with an increase in the amount of urine, form a symptom group sufficiently characteristic. It is by no means so easy to determine always the cause. Some of the cases, as already mentioned, are congenital, and have persisted for years. Terrier and Baudouin divide the cases of acquired intermittent hydronephrosis into those in which the cause is

obscure or ill-determined, the cases due to lesion of the bladder or of the parts in the vicinity of the lower end of the ureter, and the cases associated with displaced or movable kidney, and due to lesions in the upper extremity of the ureter. In the first group there are a certain number of cases in which the intermittent hydronephrosis is due to calculus. There are instances also caused by blood clots, by tuberculous lesions, and by spasm of the ureter. In the second group of cases the lesion of the bladder is most commonly tumor, with infiltration of the wall near the orifice of the ureter, and by lesions of the uterus and vagina, particularly cancer.

The important rôle in intermittent hydronephrosis is unquestionably movable kidney, the association with which has been recognized since the publication of Landau's monograph in 1881. You will find in the work of Terrier and Baudouin the records of the autopsies which have been made, and of the examinations of the kidneys which have been removed by operation, and I show you here several of the figures which illustrate the marked kinking at the upper part of the ureter. In other instances the ureter has penetrated the pelvis at a very acute angle; and in other cases, again, there appears to have been a positive flexion or twist. It is not difficult to understand how, in the displacement of the organ, such a flexion or kinking could occur, and the wonder, indeed, is that it does not occur more commonly.

You will naturally ask, What becomes of these cases? It is quite possible that the condition may be transient, even when associated with movable kidney. The careful adaptation of a bandage and pad may give great relief, as in Case LXIII; also in Case LXII to a less degree. When the attacks are severe and the tumor recurs with frequency, nephrorrhaphy should be urged. The chief dangers are the conversion of an intermittent into a permanent hydronephrosis, and the infection of the sac with pyogenic organisms—conditions which demand operative interference. It is interesting to note, however, the prolonged period during which the contents of the sac remain clear. In the congenital case of twenty years' duration, to which I have so frequently referred, the secretion of the affected kidney—diluted to a shell, but still containing renal tissue—was only a little turbid.

III. MALIGNANT DISEASE.—Of three cases which came before me for diagnosis, two were in children under the age of ten.

CASE LXIV. *Gradual Development of an Enormous Tumor in Left Side of Abdomen.*—E. R., a boy of ten years, seen with Dr. Hewetson, May 10, 1893. I had seen him about six or eight months before for a few minutes in the dispensary. Unfortunately, the notes made at that time have been mislaid. He has had for nearly a year a progressively increasing tumor in the left side of the abdomen. Until two months ago he has been able to get about by himself, but he is now so weak and the tumor is so large that he is scarcely able to walk. He has become very much emaciated, and since I first saw him the tumor has increased greatly in size. His chief complaint at present is of pain down the left leg, and about the ankle and hip of the same side. The abdomen is greatly distended, particularly on the left side, and the superficial veins are very full. The lower part of

to have malarial disease on account of the severe chills which occurred at intervals during the past five years. They may form a very special feature in the disease, as was pointed out many years ago by Owen-Rees, and it is to be remembered that the chills may occur with a very slight amount of pus in the urine.

One of the most important advances in the diagnosis of renal affections has been the facility with which of late surgeons have practiced catheterism of the ureters. Such a demonstration as we had in this case by Dr. Kelly—the catheters in position in both ureters at once, from the right of which a turbid, purulent urine flowed out, from the left a perfectly clear—illustrates the remarkable technique which has been developed by specialists. The demonstrations which many of you have seen in the genito-urinary department by Dr. James Brown prove that catheterism of the male ureters, though not so easy, may be performed with readiness, and gives information of the greatest value as to which kidney is involved.

In the series of cases which we have studied together you have had many illustrations of how far the reasonable probability of Bishop Butler will carry the clinical physician in his endeavors to determine the nature of an abdominal tumor. You will have noticed in how many cases the surgeon made it a certainty, not, unhappily, in diagnosis only, but also in prognosis. But desperate cases require desperate remedies, and in no single instance were the chances of a patient damaged by the exploratory incision.

Amid many pleasant memories of Berlin, just twenty years ago this session, none recur more persistently than those associated with that true Asclepiad, Ludwig Traube, who, adding *probity* to learning, sagacity, and humanity, reached the full stature of the Hippocratic physician. When acknowledging some error he would say—often in a soft, meditative manner, as if gently reproaching himself—Have we carefully observed all the facts of the case? Yes. Did the art permit of a judgment on the facts under consideration? Yes. Did we reason correctly upon the data before us? No. *Wir haben nicht richtig gedacht.* And with these significant words—may they long echo in your ears!—let us close the exercises of the session.

Original Communications.

MYXŒDEMA,

WITH PHOTOGRAPHIC ILLUSTRATIONS.*

By J. A. WESSINGER, M. D.,

ANN ARBOR, MICH.

THE subject of this paper is a lady, aged forty-five years, born in Germany, married, and mother of seven children, four of whom are dead; the three living are healthy. This patient was first seen on March 4, 1894. At this date the following conditions were noted: Temperature, 97°; pulse, 90, small;

* Read before the Michigan State Medical Society at its twenty-ninth annual meeting.

heart impulse feeble, but regular. Patient presents a marked bulky appearance, general puffiness of all the tissues, but no true œdema. Voice husky and very weak; face markedly flushed; eyebrows heavily arched; lips very thick and immobile; loss of hair quite marked; the face appears masked; the tongue is large and flabby, and the fingers are club-shaped. Tonsils hypertrophied. Urine scant; specific gravity, 1.025, acid; no albumin or sugar; oxalates abundant. Extreme prostration; patient unable to walk alone. Bowels constipated. Appetite small. Respirations, thirty per minute. No hereditary predisposition. Patient gives a history of thyroid enlargement, with subsequent atrophy. She is very slow in apprehension, thought, and action, and is very clumsy. On March 12th the following measurements were taken: Height, four feet ten inches; weight, one hundred and eighty pounds; circumference of neck, fourteen inches; right wrist, seven inches; left wrist, six inches and a half; right hand, eight inches; left hand, seven inches and three quarters. Patient is affectionate toward her family, and yet lives in constant fear lest she do them bodily harm. She seems to have a morbid impulse to inflict injury. The disposition is melancholic. Present illness began five years ago. The treatment advised for the patient was as follows:

R Cinchonidine sulphate..... gr. j;
Iron by hydrogen..... gr. jss.;
Ipecac..... gr. $\frac{1}{2}$;
Arsenious acid, { āā gr. $\frac{1}{10}$.
Strychnine sulphate, {

M. In tablet. Sig.: One three times a day.

Desiccated thyroid powder (P., D. & Co.), five grains in capsule with each meal.

At the end of the third day of treatment the patient's temperature rose to 101°, with quite marked stomacheic disturbance. She was then limited to one capsule a day. After two or three days, when the reaction had subsided, she was again ordered to resume the three capsules a day, without further disturbance.



FIG. 1.—March 12th, at beginning of treatment.

Photograph No. 1 was taken on March 13th, and gives a fair illustration of the patient's appearance at the beginning of treatment.

Photograph No. 2 was taken on April 29th. On this date the patient's weight was one hundred and sixty-five pounds. Measurements as follows: Neck, thirteen inches; left wrist, six inches; right wrist, six inches and a half; left hand, seven



Fig. 2.—Six weeks after beginning of treatment.

inches and a half; right hand, eight inches. Temperature 98.5°; pulse, 80. The patient is active and cheerful, does all her housework, and is also doing some gardening. By contrasting these two illustrations, the improvement of the patient will, I think, be quite apparent. From an almost helpless condition in which we found the patient at the beginning of the treatment the improvement was so marked that on April 6th she was able to walk to my office, a distance of a mile and a half, without assistance.

It no doubt would be of interest to all present, had we the time, to make a complete study of the work of the various authors whose labors have brought the treatment of this peculiar condition to its present state of perfection. To know, when a certain part or structure of the human body becomes diseased and atrophied and its function lost, that such function can again be restored through the administration of such part or structure in its normal state seems like an innovation indeed, and yet, at least so far as the thyroid gland is concerned, such is a fact of modern medicine. The author will not make the prediction that, because disease resulting from the functional loss of a certain gland can be successfully treated by supplying that gland substance in its normal state, therefore all gland diseases can be met by a like procedure; and yet, in the light of recent research, such a consummation is not impossible. By way of illustration: When we see men like Robert Abbe, of New York, successfully sever the aorta of a lower animal and reunite it by means of a sterilized glass tube, and exhibit the animal four months later, well and healthy, with a glass tube in its aorta; when we see the same observer amputating a limb complete, save its artery,

and then reunite it to the body, bone, and sinew—dare we hope, in the light of this research, that the time is not far distant when the surgeon will amputate a diseased or injured limb and cause some worthless criminal to yield a sound one in its place? Finney,* of Johns Hopkins Hospital, successfully sutured two fingers in place seven hours after they had been cut off. At the end of three years motion and sensation were complete. If all this becomes possible in surgery, equally great achievements are not impossible in medicine. We owe the term myxædema to Dr. Ord, of England, who gave it this name because he believed the swelling and tumefaction of the tissues to be due to an excess of mucin.† It has been demonstrated, however, that excess of mucin is by no means a constant accompaniment of the disease. The successful treatment of myxædema has been gradually evolved out of the arduous and patient labors of Dr. Ord, Professor Horsley, Dr. Semon, Dr. Kocher, and Professor Schiff. Suggestions coming from Brown-Séquard in regard to the use of certain animal extracts no doubt also aided in this line of research. But to Dr. Murray, of Newcastle, must be ascribed the honor of being the first to prove the success of the thyroid treatment in myxædema. In his study of this disease Dr. Ord was the first to call attention to the invariable presence of thyroid atrophy. Dr. Semon, taking up the train of symptoms observed by Dr. Kocher to follow complete thyroidec-tomy, brought the matter prominently forward in England and by indefatigable energy was enabled to collect a vast amount of evidence tending to prove the identity of the cachexia thus resulting and myxædema. Professor Horsley, by numerous experiments on the lower animals, showed the close resemblance of the resulting dyscrasia to human myxædema. Professor Schiff proved that by first transplanting a thyroid gland to the animal, that then its own thyroid could be removed without any resulting dyscrasia. Professor Horsley followed this observation with the suggestion that myxædema might be successfully treated by thyroid transplantation in the human subject. He drew this conclusion because the sum of all the evidence now brought to bear proved beyond a doubt that myxædema is caused by a functionally inactive thyroid gland. Thyroid transplantation was practiced, but it was soon found that the implanted gland was rapidly absorbed, and as a result the treatment had only temporary value. The rather curious observation had also been made that the disease remained stationary while the subject was in the pregnant state. This may go to prove that the foetal thyroid supplies temporarily the place of the functionally inactive maternal thyroid. It was his familiarity with these observations that led Dr. Murray to priority in the subcutaneous injection of thyroid extract. This method of treatment was successful, but difficulty arose because it became very essential, yet at the same time difficult, to secure a thoroughly aseptic solution. This method was finally abandoned and for a time resort was had to raw thyroid feeding, and this in turn has given way to the desiccated thyroid

* *Johns Hopkins Hospital Bulletin.*

† Lectures by H. W. G. Mackenzie, A. M., M. D.

powder, which, given in capsule, certainly embodies all that modern medicine could desire in the successful treatment of myxœdema. While the success of this mode of treatment has been quite conclusively demonstrated, do we know upon what principle or agent these results depend? Has the veil of empiricism been lifted and the treatment placed upon a truly scientific basis? Very recent investigations* enable us to affirm these inquiries. It had always been thought by investigators that the active agent in the thyreoid must be a ferment of some form. Since digestion has no power to change the remedy when administered, it was thought the active agent might be peptone; but after numerous experiments it was found that the thyreoid gland does not contain peptone, also that it does not contain the proteoses, and does not secrete mucin. It has been proved, however, by at least two reliable methods† that nucleo-albumin is obtainable from the thyreoid. But this substance can also be obtained from the very many organs composed chiefly of cells. There is this difference, however, that while nucleo-albumin as usually obtained comes from the cells lining the acini, "in the thyreoid it is obtained from the colloid contents of the acini." This has been proved beyond a doubt by Lilienfeld and Monti's micro-chemical method. Now, then, we find the invariable absence of this nucleo-albumin when the thyreoid undergoes atrophy with the resulting cachexia. It is therefore probable that the nucleo-albumin is the active principle which, when administered, cures the disease, and when absent from the system myxœdema results. It is not known as yet whether thyreoid nuclein differs essentially from the other nucleins or not. Neither do we know whether the benefit comes from nucleo albumin as such, or whether it is first split up and the nuclein set free to act by itself. If these two problems can be solved in the affirmative, then myxœdema and the allied cachexias are just as amenable to nuclein as to thyreoid treatment.

The author takes pleasure in acknowledging the kindness of Mr. J. H. Frost, Ph. C., of the senior medical class of the University of Michigan, for the photographic work pertaining to the paper.

THE PRODUCTION OF DISEASES BY SEWER AIR.‡

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The composition of sewer air is at least as variable as that of sewerage. According to Henry R. Kenwood (*Public Health Laboratory Work*, Philadelphia, 1893, p. 232) its reaction is generally alkaline. Oxygen is variously diminished, according to the efficiency of the sewer ventilation; it is sometimes in normal proportions. Carbonic acid is variously increased from the same cause; it prob-

ably does not average more than twice the normal amount. Ammonia, sulphureted hydrogen, ammonium sulphide, and carbon bisulphide are present in small quantities. Marsh gas is small in amount or absent. The fœtid and putrid organic vapors of sewage are, according to Odling, allied to the compound ammonias, and are probably carbo-ammoniacal, and contain traces of ptomaines and leucomaines (i. e., animal alkaloids). Molds, fungi, and bacteria (chiefly bacilli) and their spores, together with animal and vegetable débris, appear to constitute almost the entire suspended matter. Micro-organisms average about six per litre in the air of a good sewerage system.

The atmospheric air always contains bacteria, mostly, it is true, dead, and mineral parts. The presence of pathogenic germs has been denied; but there *must* be some in the air, and living ones too, for contagion, unless it result from immediate physical contact of the sick and the well, must take place through the air. Tubercle bacilli are found on the walls of rooms; before they enter the lungs of inmates, they must be carried through the air with other dust. It is true, they have been found there but rarely; but von Eiselsberg claims to have seen *Streptococcus erysipelatos* (Langenbeck's *Archiv*, vol. xxxv, 1886) and Pawlowsky *Pneumococcus Friedlander* (*Berl. klin. Woch.*, No. 22, 1885). Indeed, the general statement of Tyndall, not contradicted, always reaffirmed (*Essays on Floating Matter of the Air*, New York, 1882), that the apparently purest air contains dust with micro-organisms, makes the frequent presence of pathogenic organisms at least probable.

But the atmosphere is certainly no favorable medium. Germs are heavy and fall to the ground; thus it is not unreasonable to believe, but it can not be proved, that a walking child of two feet in height may inhale them more readily than an adult whose respiratory inlet is more than five above the surface. The dryness and light of the sun destroy them; even micrococci die in sunlight in a few hours (Duclaux, *Microbes et maladies*, p. 34). It is only when locked up that spores were found normal after many (twenty-five) years. Koch retained virulence in his tubercle bacilli five or seven days in diffused light, but only a few minutes or at most hours under sun rays.*

Indeed, pathogenic bacteria have a hard time of it. They live in high temperatures only, and die soon in a low one; they are readily destroyed in water containing saprophytes or any other non-pathogenic bacteria. In the thoroughly soiled water of the River Seine, at Paris, which holds no oxygen, there are no pathogenic bacteria; while a few miles farther down, near Meudon, the Seine contains again both oxygen and pathogenic bacteria. Hence, sewage is not a promising place for them to thrive or live in. Great dilution destroys them or renders them innocuous. For two thousand years Rome has emptied all its fœces and other refuse into the Tiber, and no impurities of a dangerous character were detected by Celli and Scala a few miles below the city.

* Gourley, in *Journal of Physiology*, March, 1894.

† Wooldridge's and Halliburton's methods.

‡ Read in the General Session of the Congress of American Physicians and Surgeons, May 30, 1894.

* The statements occasionally made that *Achorion Schönleini*, plasmodia, erysipelas cocci, also tubercle and typhoid bacilli, and vibrio cholerae may undergo multiplication in the air, lacks confirmation.

Now, what is valid for air outside a sewer is so for that inside it, with this difference, that there are more germs found in the atmosphere than in sewer air. Billings states emphatically that there are fewer micro-organisms in the air of sewers than in that of the streets. He quotes Carnelly and Haldane (*Proceedings of the Royal Society*, London, 1847, p. 51), who report that the London and Dundee sewers contain twice as much carbonic acid, three times as much organic matter as outside air, and fewer micro-organisms, and remarks that this air in the sewers is better than in naturally or even mechanically ventilated schools. It is only when there is splashing in the sewers that (temporarily) there can be more organisms in their air. Otherwise moist surfaces do not give them off. It is only under favorable circumstances that they can be carried off and upward into the houses and escape through ventilating shafts. Into living rooms they could escape only either where there are no traps, or where the traps are empty either from disuse or from being sucked out or from upward pressure. In this way, Billings suggests, pyogenic organisms and Fehleisen's coccus appear to be conveyed through house drains.* At all events the opportunity for microbes to get out of the dwellings is greater than to get into them. When they get into the drains from inside, they are flushed out. It is evident, however, that the flushing out of substances entering the sinks from inside depends on the structure and size of the drain, the nature of the trap, and the amount of the water poured through it, also on the use or non-use of disinfectants employed in the households.†

Less rainfall, and consequently less flushing of sewers, gives rise to accumulation of more filth. Badly constructed brick sewers have the same result. Outfall sewers terminating below water are apt to be choked. Thus, while Russell's analysis yielded a fair standard of purity of sewer air, Parent Duchatelet found only 13.79 per cent. of oxygen and 2.99 per cent. of sulphureted hydrogen. Thus gas is undoubtedly developed to a great extent, bubbles are constantly breaking on the surface (Frankland on The Transport of Solid and Liquid Particles in Sewer Gases, *Proceedings of the Royal Society*, April, 1877), and may enter houses through *untrapped drains whenever they are not permitted to leave the main sewer otherwise.*

Under these circumstances, as the specific germs of in-

fectious diseases may be contained in the liquid disseminated by the bursting of bubbles, sewer air may certainly become specifically infected. Some of the germs may find a favorable medium in the organic material, the ammonia and the phosphates of sewage, while others are more liable to be destroyed by the saprophytes of putrefaction. As to typhoid, the cases are very numerous. In regard to cholera Parkes refers to its introduction into Southampton in 1866, where it was probably due, in his opinion, to the passing of pumped sewage, infected with cholera evacuations, in a frothy and agitated condition along an open conduit. He adds the remark that, as soon as the latter was covered over, the epidemic (or rather endemic) abated. The latter remark is suggestive. A sewer disconnected from houses by good traps is no longer an open conduit; and it appears that *unless sewer air is forced upward*, no amount of cholera bacilli or toxin will annoy the population of houses properly secured by traps and by ventilating shafts both in the houses and in the streets.

But granted that sewers are infested with bacteria, how do they get into the air of sewers, of streets, of houses?

Mr. J. B. Berkart (*British Medical Journal*, November 25, 1893) claims that, in the usual conditions in which defective drainage is supposed to exert its baneful influence, it is impossible that pathogenic micro-organisms which may exist in an untrapped pipe or in a cesspool can escape into the air. The force of evaporation is not enough to lift from a moist surface an organism, however small it may be; and even powerful ascending currents of air can not convey from a dry and porous soil, much less from a cesspool, any germs. Consequently, from untrapped pipes and cesspools nothing but irritant and toxic gases can escape.

He experimented through six or eight hours with currents of air at a velocity of from twenty-two to forty-five miles an hour. They did not lift into the atmosphere a micro-organism from a putrid solution of extract of meat of not more than a half per cent., or from putrid urine, and were unable to detach a micro-organism from any such putrid solution as may have been allowed to dry on the walls of a glass vessel or on wire gauze.

The question whether any and which diseases can be produced by the inhalation of sewer air has engaged the fears of a great many and the attention of a number of observers. A careful contribution to the literature of the subject is that of H. Hun (*Medical News*, August 20, 1887). He admits the absence of proof of a direct infection by sewer gas, but has quite an array of cases of ailments and diseases attributed to it. Anorexia, constipation, vomiting, diarrhoea, and coated tongue are frequent; prostration, drowsiness, headaches, small pulse, delirium, clonic and tonic spasms, fever, chill, and coma, intercostal neuralgia, Bright's disease (though in a person of sixty-five with arteriosclerosis, and another of sixty years); poliomyelitis in a patient of twenty-nine, who never recovered fully, and of forty-two who recovered after two years; also enlargement of the spleen, with albuminuria, are among the observations made in persons exposed to the exhalations of sewers or cesspools. It will be noted, however, that

* The epidemic of enteric fever in Croydon, 1875, was attributed by Buchanan to the entry of infected sewer air into houses through untrapped drains and openings into the drains. The pipe sewers were of small size, six or nine inches in diameter, and were ventilated at distances of a hundred and fifty to two hundred and fifty yards by petty openings which were blocked by charcoal trays.

† The quantity of refuse from rooms and houses is very large indeed. Pottenkofer calculates the daily amount of feces for the average person at 90 grammes, of urine 1,170 grammes; for a thousand persons per annum, feces, 34,000 kilogrammes; urine, 428,000 litres. If you add to that figure 159 litres of water daily for each individual, the sum total of daily sewage for a thousand persons is 160,000 litres. That explains in part the wrath of Andrew Fergus, M. D. In the *Proceedings of the Medico-Chirurgical Society of Glasgow*, of October 2, 1868, he broadly states that water-closets and canalization are opposed to revelation and Bible, that they are contrary to Nature, inasmuch as they rob the soil, are the sole cause of pollution of rivers, and fill the sewers with noxious gases which enter the houses in spite of traps.

among all these cases there is not one which can be traced with the knowledge we now possess to a specific germ.

Mark Style (*Lancet*, October 19, 1889) attributes cases of acute pemphigus to the inhalation of sewer gas. Two children of five and of two years lost color and felt drowsy for a fortnight, then developed blebs on feet and shins; new attacks occurred on other parts of the body (no erythema with it). There were fever and anorexia. The sewers were found to be badly constructed and leaky; when they were mended the children improved.

Hæmoglobinuria in a child of eight years, "probably due to the inhalation of sewer air," was observed by Gordon Sharp and William Summerskill (*Lancet*, December 9, 1893). The girl lived in comfortable circumstances, was previously in good health, fell sick with dyspnoea, puffy appearance, and frequent micturition, which resulted, however, in six ounces daily only of a chocolate-brown urine the sediment of which rose to the top. Guaiacol and ozonic ether gave the characteristic blue color. There were no casts, only a trace of albumin, but few blood cells, much amorphous hæmoglobin. Convalescence began in three days, hæmoglobin disappeared after the fourth day, and anæmia remained behind. In the dwelling the water-closet pipes had been leaking, and the smell had been disagreeable. The pipes were being changed, and the smell was worse when the attack came.

It appears, in the opinion of the authors, that sewer air affects young children quite rapidly, and noxious vapors are known to produce hæmoglobinuria, but it is claimed that no previous case like the above is known.

In the experience of Dr. A. H. Smith, the president of the Climatological Society, in 1881, a large number of the attendants in St. Luke's Hospital, New York, were sick with tonsillitis. Examination showed that the brick sewer which ran beneath the building had fallen in in many places, and the sore throats ceased when iron pipes were substituted for the brick sewer.

The same gentleman communicates to me the following facts:

At Elberon, N. J., in the latter part of August, 1891, occurred a series of eleven cases of sore throat within a period of eight days in the summer residence of one of the most prominent of the cottagers at that place.

The first person attacked was the butler. He complained of great soreness of the throat and severe headache, but continued for two or three days to wait upon the table. When first seen there was intense congestion of the tonsils and fauces, but no membrane, and no exudation at the mouths of the tonsillar follicles. There was little or no swelling of the throat, and no enlargement of the lymphatic glands. The character of the throat lesion remained the same throughout the attack. The temperature never exceeded 103° F. There was extreme lassitude and severe aching of the bones. This, which was the severest case, lasted about ten days, the dysphagia being the most prominent symptom to the last.

In rapid succession ten other inmates of the house, including several guests, exhibited similar symptoms in varying degrees of severity; in two of the cases the throat

lesion was that of follicular amygdalitis of a mild type. In the other cases there was simply a dusky redness of the fauces, and some degree of pain in swallowing, lasting from three to six days.

It was discovered, as the result of a sanitary inspection of the dwelling, that a bath-tub on the third floor had been, for some time disused, and that the trap had become dry, permitting direct communication with an old cesspool, the existence of which was not known. No other plumbing of the house discharged into this reservoir, and there was no offensive odor from it.

No communication of the butler with any source of infection could be traced, but the negative evidence on this point was not conclusive, as unconscious exposure could not be wholly excluded.

The bath-tub and its connections were removed, and the house has been occupied for two seasons since without the occurrence of further trouble.

Earlier in the same summer a group of four similar cases occurred in a house about half a mile from the one just mentioned. The first patient was a young lady, in whom the throat lesion was similar to that of the butler already referred to, but with the difference that the throat was extremely painful even when at rest, and the dysphagia was so great that the patient could scarcely be prevailed upon to take even the smallest amount of nourishment. The fever in this case was moderate, and there was no aching of the limbs.

Three other cases occurred in the house within a week. One of these showed well-marked follicular inflammation; the other two only engorgement of the mucous membrane, chiefly venous in character.

Examination showed that the main waste-pipe, which ran under the house for nearly the whole length of the latter, was of clay, and was broken in numerous places. The soil along the whole length of this pipe was saturated with sewage. An iron pipe was substituted, and the contaminated soil removed and replaced by dry sand. No sickness has occurred in the house during the two seasons that have succeeded.

Owing to special reasons, there was absolutely no intercommunication between the persons constituting these two groups.

One of the latest contributions to the same subject is a book on the combat with infectious diseases by Brix Pfuhl and Nocht (*Die Bekämpfung der Infektionskrankheiten*). After discussing the necessity of access of air to a sewer, to prevent it from getting putrid and giving rise to bad odors and dangers, they say on page 310:

"The transmission of infectious diseases by sewer gas has not been proved by past researches and may be considered as out of the question. But bad sewer air can produce nausea, headache, and malaise (when its effect is persistent), and may become one of the causes of other morbid symptoms. To the workmen employed about sewers the preservation of pure air is of paramount importance. Thus successful aeration has a great hygienic importance.

"Investigations referring to the health of men employed in sewers had negative results. They do not

suffer more than the average population from infectious diseases.

"Only those employed in the sewers of Wiesbaden suffered from rheumatic complaints more than other public employees. This was due to the fact that the Wiesbaden sewers, carrying off the water of the hot springs, have a constant temperature of 25° C. or more, thus exposing the workmen to frequent colds. Thus their rheumatism depended on circumstances not at all connected with sewers or sewer air."

To my mind the assumption that throat disease and sewer air must be connected with each other is probably due mostly to the irritability of the fauces. Pungent odors and tastes are not tolerated, chloroform can not be administered to a sleeping person because of that circumstance, and strong gases produce cough and discomfort. Hence irritation, hyperæmia, and catarrh may well be explained by the contact of malodorous and sharp gases with the vulnerable mucous membranes of the throat, particularly of children, but specific germs and toxins are, unfortunately, not malodorous, not pungent, and not irritant locally. Indeed, it is in this that lies their principal danger.

Compared with the frequent endemical occurrence of sore throats under the apparent influence of sewer exhalations, which is suggested by some of the reports, I am permitted to make use of a report made to H. M. Biggs, M. D., Chief Inspector of the New York Health Department, by A. Clinton, M. D., Inspector. The report is a very careful one, and the one thousand cases of throat affection detailed under the heading of pseudo-diphtheria, which occurred, or rather were reported, from August 1, 1893, to April 1, 1894, in the city of New York from the Battery to East and West One Hundred and Twenty-fifth Street have been accurately located on large city maps. The principal conclusion to be drawn from these two maps, kindly intrusted to me by the Health Department, for whose co-operation in the preparation of this paper I am thus greatly indebted, is this, that to the best knowledge and belief of the experts of the health department the occurrence of throat disease, particularly false diphtheria, is in no way connected with sewers, open sewers, leaky sewers, or outlets of sewers. The same conclusion must be drawn—I may say that just here—from two other maps placed at my disposal which prove that there is no connection in New York city between diphtheria and sewer air in any shape or form. In the latter instance there can be no doubt whatsoever, as the reports of diphtheria cases must be supposed to be correct.

There is, however, some evidence in the practice of every medical man and in public statistics that sickness in general, and fevers—mainly typhoid—coexist with the accumulation of excreta and other refuse material, though no infected water be drunk. Definite amelioration has invariably followed their regular removal. The facts carefully collected by Dr. Buchanan in his *Ninth Report of the Medical Officer of the Privy Council* prove a considerable lowering of the death-rates by such amelioration, particularly in typhoid fever. The same result has been obtained from the same cause (*i. e.*, improved sewerage) in a number

of cities—such as Salisbury, Bristol, Carlisle—where the sewers are ample and well ventilated.

He asks: "Why is it that some cities, like Chelmsford, Penzance, Worthing, and Morpeth, with ample sewers, have an increased mortality of typhoid? In one, 'the sewage is delivered into a tank by an outfall sewer which enters some six feet below ground,' with the result that when the engine is not at work or the liquid accumulates in the well, cellars get flooded by the sewage, and sewer gases get forced up into the houses (W. H. Corfield, *The Treatment and Utilization of Sewage*, 3d ed., 1887, page 252). In another one there was no ventilation of the sewers, and sewer gas was forced back through the traps of sinks and water-closets. In another the pipe sewers are below the level of the river, so that in times of flood the sewage is backed up into the main sewer for four or five hundred yards. It is known that outbreaks of typhoid followed times of flood when the outfall sewer had been under water."

The general reduction of mortality can not be said to have extended to infants under a year to the same degree. Typhoid fever is not frequent at that early age, and when it occurs, it is mostly mild, and few deaths occur from that source.

The mortality of infants depends on different circumstances. Diarrhœal diseases do not appear to have been visibly benefited by improved sewerage.

Scarlatina, measles, whooping-cough, croup, and diphtheria were not rendered milder or less fatal through improved sanitation in general, and sewers in particular. On the contrary, both scarlatina and diphtheria were greatly increased; on the other hand, "cholera epidemics appear to have been practically harmless in the towns examined" (page 47). Even pulmonary phthisis exhibits a great general reduction of its death-rate wherever, but only there where pipe-sewerage was accompanied with measures taken for the purpose of drying the subsoil generally, such as a special system of deep rain-water culverts.

Stevenson and Murphy, page 11 of their treatise on *Hygiene and Public Health*, refer to the enteric fever in Eastney Barracks, where sewer air was forced back by the tide into the drains, which had no traps but many leaks. When traps were put in and the leaks mended, the fever subsided. Edward Seaton (*British Medical Journal*, December 23, 1893) refers to his experience with dry earth closets. When they were largely introduced after the abolition of privy vaults, the mortality from typhoid fever was greatly reduced. The English generally believe firmly in the dependency of typhoid fever on cesspool and sewer exhalation. It is true that typhoid is apt to be more frequent where there are no sewers but cesspools, but the former are but cesspools rendered entirely or mostly innocuous by their structure and isolation. If the covers were removed from the sewers they would be open conduits, in fact cesspools, and worse than mere privies.

I believe I am correct when I say that the large majority of cases of typhoid fever we observe in New York city in September and October of every year are imported from the country. There a large concourse of people takes place, larger from year to year, in farmhouses, boarding

houses, or large hotels. Many of these cases can be traced to the same place, not infrequently big hotels with a good reputation. The cases have become more numerous from year to year, and just at the time when the people thus stricken expected to be benefited by their summer outing.

Cesspool poisoning I know exists. The following case is an instance: A lady who annually took dozens of her boarding pupils to the country, hired for that purpose large farms or country places. During the whole summer not one of the children and young ladies fell sick. One day she happened to come near where workmen were emptying a large cesspool at a great distance from the dwelling and the drinking-water supply. She was exposed to the disgusting odors but a few minutes; but, not being acclimated, within ten days she came down with a very severe typhoid fever, the only case in the whole community. Typhoid fever in dwellings in which the water-closets were in disorder, mainly those located in the interior of houses, I have met with in a number of instances. In the same way, and from the same cause, I have seen dysentery. In several instances I have seen tenement houses full of dysentery, where I could convince myself of the unusual filthiness and offensiveness of the common privy in the rear of the place. In ill kept sick-rooms or hospital wards, where dysenteric stools are not disinfected and removed, dysentery will spread.

There are many authors who go far beyond this. Dr. George Cordwint (*British Medical Journal*, November 25, 1893) is more positive than most of those who like him believe in the direct production of infectious and contagious diseases by defective drainage. He is even anxious to substitute "privy odors" for sewer air, and takes it for granted that bad drainage "frequently evolves gases producing typhus, diarrhœa, etc., often *without* diphtheria; but of forty-three cases of diphtheria—all rural—all occurred in houses pervaded by a strong privy odor. He adds that this is a condition then quite usual in the laborer's cottage, but does not say why there were, in the course of three years, 1858-'60, not more than these forty-three cases, nor why there were none of them before those years. The real explanation of it all is that there *were* cases of diphtheria when the mucous membrane, affected by the influence of gases, was invaded by diphtheria germs, and there were none, in the same prevailing conditions, when there was no diphtheria about. At all events, however, it is a grave mistake to consider "privy odors" and a specifically infected atmosphere identical. They are far from so being. No specific germ has an odor.

R. W. Parker commits himself unmistakably in favor of sewer-air borne diphtheria. His reasoning is simple. For fifteen years he met with cases in which the infection appeared to come from drains. The special infective material has got into the drainage system. There will be more and more diphtheria, since the main drainage system is now largely ventilated directly into the open streets. The ventilators, while they protect the individual houses, poison the whole atmosphere and spread the disease broadcast. It is this cause to which the increase of diphtheria in London is said to be largely due. So in his opinion the ventilation

of the sewers is a great danger. It would be so if the ventilation of a sewer be defective; if, for instance, there were but a single outlet to the subterranean cesspool, the odors and exhalations would be disagreeable, and possibly harmful. Diarrhœa, nausea, vomiting might be and are produced in those exposed to the odors—children with vulnerable mucous membranes and respiratory organs only two feet above ground would be principally endangered—but unless there were a specific germ, or rather a number of germs, in the exhaled air there would be no specific disease. If there were any admixture of specific germs, they would be, the worse the odors of putrefaction, the sooner destroyed and rendered innocuous.

In the *Lancet* of January 13, 1894, H. Grant Sutton, M. D., relates the following incident: On March 25, 1892, diphtheria broke out, and afterward spread, one hundred and fifty yards from a quay on which immense masses of decomposing animal and vegetable matter, rags, woollen materials, old chair seats, feather beds, and all kinds of rubbish and filth were burned and lay smoldering for weeks. "Though the gases are volatilized their poisonous properties are not destroyed, and so these noxious fumes are carried in the direction favored by the wind, one of which would probably be over the village where diphtheria did actually occur." Now, the report is not positively clear as to whether the refuse of the city is actually and completely destroyed by burning or not. Even if it be so, depositing and the burning are not simultaneous, and it appears very much more probable that the wind carried diphtheria germs directly from the huge masses piled up. Is that possible or probable? I believe it is. In spite of the great diffusibility of gases, they are liable to remain in a solid mass. Our tornado experience proves that moved air passes through many miles with sharply defined boundaries; and standing on board a steamer we see the masses of smoke and steam cling together, even for miles, in an unbroken column. So it is quite possible for the wind, if it be strong enough, to carry disease germs to a distance. But the co-operating requirements of such a result must be the ample presence of pathogenic germs, the absence of disinfectant sunshine, and wind blowing sufficiently strong in one direction.

Begging the question and absence of logic are great aids in making mistakes and perpetuating popular prejudices. In the coolest manner possible Nicolaus Gerzetic (*On Parasitism and Disease Producers*, 1893, p. 96) delivers himself as follows: "It is well known that sewer air carries pathogenous germs, like those of diphtheria and gastro-enteritis, even typhus, according to Buchanan and others."

George Carpenter, M. D., of London (*Arch. of Pæd.*, May, 1894), goes further than his predecessors. He attributes a case of diphtheria occurring in an airy house located in a healthy district to the inhalation of the foul air emanating from a putrescent placenta which had been left in a night commode at the head of the bed. He means to prove that decomposing animal and vegetable matter can be readily and very reasonably accused of inducing the disease, and besides declares it probable that the diphtheritic virus has found a suitable nidus in these de-

composing materials for its growth and propagation, and the engrafted virus is the real cause, though not the apparent one. "In the same way sewer air acts as the vehicle and not the cause." "By a rational process of thought we feel that this must be so, but sometimes a case crops up to which our reasoning does not apply, and we are left wondering as to how a decomposing mass of matter could become infected."

I should say it could not; for if there is a power that destroys pathogenous germs it is putrefaction.

In many instances the reasoning in this matter is simply emotional. Thus, according to the *Massachusetts Association of Boards of Health, Official Journal*, September, 1893, page 23, mention is made in the discussion on a recent law passed by the State Legislature of Massachusetts on the licensing of plumbers of Mr. Roe, of Worcester, who introduced the bill and worked for it. He is mentioned as "a man who had difficulties to encounter in his own house regarding unsanitary conditions. His child died of diphtheria, and the house was examined by an inspector of our board and found to be in an unsanitary condition. At the time he was loath to accept it as the cause of the death of his child, but eventually he felt convinced. He is an ex-principal of our high school here and a broad-minded man, and is thoroughly convinced of the fact that the child must have died from the effects of the unsanitary conditions." This is the kind of report that will influence public opinion. Emotional reasons in place of scientific reasoning will always carry the day. *Credo quia absurdum est.*

(To be concluded.)

MERYCISM.*

By WILLIAM A. HAMMOND, M. D.,
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So far as I am aware, no example of this curious affection has been reported in this country. It may therefore be of interest to the association to receive the details of a case that was under my care a few months ago, and also perhaps to excuse me if I venture to give a short account of the disorder.

Merycism (*μῆρυκισμός*, rumination) is the abnormal act or habit of raising the food from the stomach and remasticating it. It is therefore the performance of the function of rumination by the human subject. It was not known to the ancients, or, if known, was not regarded by them as worthy of notice as a disease, for no medical writer previous to Fabricius ab Acquapendente,† who wrote in 1725, makes mention of it, and it has almost entirely escaped observation by systematic writers. It is not, for instance, considered in Ziemssen's *Cyclopædia*, or even mentioned, except incidentally, as an accompaniment of dilatation of the œsophagus. It is, however, treated of at some length by

Copland* under the head of "Rumination," and is defined as "the regurgitation of food which has passed into the stomach and which is remasticated and again swallowed." In all, less than fifty cases have been reported, though, of course, this is no exact indication of the prevalence of the disorder. It certainly, however, is rare, for not only has no instance been recorded by medical writers of this country, but I have not, with all my inquiries, met with a physician who had witnessed a case.

Fabricius—who, as I have said, was the first medical writer to call attention to merycism—reported two cases. One of these was that of a nobleman who experienced the greatest pleasure from the fact of its existence in his person, inasmuch as it gave him the gustatory delights of two meals for the one eaten. The regurgitation took place about an hour after the food had been swallowed, and was then more deliberately masticated than in the first instance. This gentleman, Fabricius remarks, had not inherited a pair of horns such as grew out of his father's forehead, but he possessed the animal function of rumination instead. In another case, occurring in a monk, the horns were present. From these facts the conclusion was reached with that extraordinary absence of the logical faculty, which exists even to this day, that all human beings that ruminate have horns, and from that assumption the transition was easy that they also possess two stomachs.

That distinguished physiologist, the late Dr. Brown-Séquard, acquired merycism after reaching adult age. As I learned from him personally several years ago, he had undertaken a series of experiments on digestion, and, with that total abnegation of self which characterized him, he performed them on himself. He swallowed small pieces of sponge attached to strings so as to allow of their withdrawal from the stomach saturated with the digestive mass. The process went on very well for some time, but finally the stomach rebelled and the sponges were rejected. Nor could he with all his efforts succeed in again causing tolerance. At the same time the food that had been eaten was also vomited, and at last the habit of regurgitation became fully established. After a few years he acquired some degree of control over the matter, so that it was at times possible for him to prevent the action by a strong effort of the will. It was a source of great annoyance to him, and not the least so inasmuch as it in a great measure deprived him of social pleasures which he would otherwise have enjoyed.

The affection is much more frequent in the male than in the female sex. Several cases have been observed in imbeciles or idiots. There was mental deficiency in the case that was under my care. I am inclined, however, to think that the greater comparative frequency of its occurrence in such subjects is due to the fact that they are prone to eat without sufficiently chewing their food and to swallow one mouthful before the preceding one has reached the stomach. By this procedure the œsophagus is inordinately distended and regurgitation most apt to occur. All au-

* Read before the American Neurological Association, June 1, 1894.

† *Opera Omnia. De varietati ventriculorum. Lugduni Batavorum, 1725.*

* *Dictionary of Practical Medicine*, New York, 1860, vol. iii, p. 716.

thorities agree that insufficient mastication and excessive haste in eating are the most powerful exciting causes of merycism. In a case reported by Cullerier the subject regurgitated his food only when he was in a hurry, and consequently swallowed the alimentary bolus before it was properly chewed. When more at leisure and eating slowly he was not troubled in this way. In the case under my observation rapid eating always caused the food to be brought up more promptly than when time was taken to eat deliberately. As a rule, the patient ate with scarcely any mastication, and undoubtedly this bad habit was the cause of the affection.

With these preliminary observations I pass to the consideration of the case referred to:

E. S., nineteen years old, entered my private hospital July 29, 1893, to be treated for a peculiar mental condition approaching imbecility, but in which the chief abnormal phenomena were those showing the predominance of certain instinctive tendencies and a lack of moral sentiments rather than of a deficient intellectual development. It is not my purpose, however, at this time, to consider any of the morbid symptoms exhibited by this patient, except the merycism which had been an accompaniment for several years. Being of the opinion that it was useless to attempt by medication to relieve him of this condition, I confined my attention to a study of its manifestations. I found that every meal was regurgitated in from half an hour to an hour after it had been swallowed, and that it was then remasticated with gustatory satisfaction; and then again swallowed. Liquids taken alone remained in the stomach, and even when they were ingested with solid food the mass that came up was comparatively free from them.

To a certain extent the action was under the control of the will—that is, he could accelerate or retard it by voluntary effort, though he could not altogether prevent it. No nausea was present, nor were there any other uncomfortable symptoms. He could not very accurately describe the taste. It was not exactly that of the food that had been eaten, nor was it a blending of the flavors of the individual substances. It was somewhat sweet and agreeably acid; something like weak lemonade without the taste of lemon, but with a distinct flavor of its own, varying, however, according to the character of the food taken, though never being, as I have said, similar to that of the ingesta.

Immediately preceding the regurgitation there was an indefinable sensation in the epigastric region, something like that experienced just before the belching of wind. Then the stomach seemed to be in motion and it could be felt to contract by the hand placed over the gastric region. Sometimes there was no other apparent muscular contraction but this of the stomach, though generally the diaphragm and abdominal muscles assisted in the expulsive efforts. When the meal had been eaten rapidly it came up almost as soon as it was swallowed and by the action of the stomach alone.

Hitherto the treatment of merycism has been anything but satisfactory, and this result is undoubtedly due in great part to the fact that the subjects of the affection do not, as a rule, care to be cured. Thus Blanchard,* who was himself a victim, does not regard it as a morbid condition. He declares that he has never suffered from indigestion nor

from any other gastric disorder; that the most of those affected, so far from experiencing anything disagreeable, derive a good deal of pleasure from its occurrence; and that, as to himself, he looks forward with satisfaction to each meal, for he knows he will obtain a double enjoyment from the food taken. He admits, however, that when the ingesta remain three or four hours in the stomach before regurgitation takes place, the taste is disagreeable, being bitter or acid according to the nature of the substances eaten. It appears to me that a person whose food remains three or four hours in the stomach can scarcely be said to have a healthy digestion.

Copland advises that merycism should be treated as a form of indigestion, but admits that all means will probably fail unless the patient takes his meals deliberately, masticates his food sufficiently, and eats no more than his digestive organs can dispose of. He does not, however, appear to have been successful in either of the three cases that came under his notice. Blanchard admits that there is only one case on record in which medication was effectual, and that was reported by Gintrac as being cured by sulphate of quinine. Tarbes, in his monograph on an instance that came under his observation, mentions some interesting details. The case was that of a young conscript who was rejected on account of being affected with merycism. The disorder continued, and four or five years subsequently he married. Up to this time he had never had sexual intercourse. On the morning following his marriage regurgitation began to diminish in the number of the occurrences and in the quantity of food brought up, and at the end of the eighth day had entirely disappeared.

As I have previously stated, no special treatment was undertaken against the merycism with which my patient suffered, but on the 3d of August, 1893, I trephined him for his mental condition, removing a button of bone the size of a dollar from that part of the skull over the superior extremity of the fissure of Rolando on the right side. There were no unusual features connected with the operation, but it was noticed that regurgitation did not occur with the meals he ate subsequently till on the fifth day, when there was a slight return. On August 11th I removed a similar button from the corresponding part of the left side of the skull. From this time till the present (May 15, 1894) there has been no regurgitation, although for the six weeks afterward that he remained under my observation there was no very great alteration in his way of eating. There was, however, decided improvement in his mental condition, and his mother writes me from Brussels, where he now is, that the change is most notable, and that there are scarcely any evidences of mental obliquity to be perceived.

Whether the cure of the merycism in this case is directly due to the operations on the cranium or is the result of the mental improvement is a question that it would be difficult to answer—that is, Is it probable that trephining would prove curative of merycism in the case of a person not the subject of mental deterioration? I am inclined to think that it would; and should another instance come under my care I should be disposed to recommend the operation, provided the patient felt sufficiently anxious to be cured to warrant its performance.

A "vomiting center" has not yet been clearly located,

* Art. Ruminantion; merycisme. *Nouveau dictionnaire de méd. et de chir.*, t. xxxii, p. 65.

and even if it should be recognized, I doubt if it would correspond with a regurgitating center, should such exist in the human brain. That there is such a center in ruminant animals is scarcely a matter of doubt. Perhaps there is in the brain of man a center—the relic of that which was active in a former state of human development—rudimentary, dead, but which, as is seen with other analogues, occasionally, under the influence of favorable conditions, starts into activity. At any rate, merycism would appear to be due in some cases to an effort of Nature to secure proper mastication of the food; not always, however, for if rapidity of eating and imperfect mastication are prolific causes of the affection, it would make itself manifest as pre-eminently an American disease.

NOTE.—Since this paper was written, Dr. Edward C. Runge, of St. Louis, has sent me a very interesting monograph read by him before the St. Louis Academy of Sciences and published in its *Transactions* for May 7, 1894. Precedence of publication, therefore, belongs to him. It is to be hoped that Dr. Runge will bring his case more fully before the medical profession. His researches and observations are exceedingly valuable.

A PSEUDO-LAPAROTOMY, AND ITS RESULT.*

By H. A. LEIPZIGER, M. D.,
BURLINGTON, IOWA.

IN drawing attention to the following report I desire to disavow at the outset any intention of suggesting a new line of treatment or opposing any approved treatment now in vogue.

The case reported is an interesting one from a physical as well as a psychical standpoint. It shows to what extent the moral effect of an operation may influence the result of treatment. Whether a repetition of the procedure adopted in this case would be advisable or even justifiable in any other case, I am not prepared to maintain; but, as we build up sound principles of practice mainly from accumulation of facts, every additional fact bearing upon a certain line of treatment must be of advantage.

This is the case of a young woman who suffered from severe dysmenorrhœa from the time menstruation was established; who was married in the course of time, bore children, and continued to suffer from dysmenorrhœa and an additional trouble—viz., serious vaginismus. A year or more was spent with various methods of treatment, with progressive increase of the trouble. In the course of several consultations operative measures were naturally alluded to, and some friend or neighbor had been relieved of similar difficulties by a removal of the annexa. It may be that these two circumstances aroused in the patient a more or less hysterical desire to be operated upon, yet there was never a pronounced request by the patient for anything of this kind, and the history as given below does not show an hysterical condition.

An operation having been repeatedly proposed by consultants as the only remedial agent left, I decided to test the value of the moral effect of anæsthesia and the usual

after-treatment as applied to abdominal sections. The patient was taken to the hospital with the understanding that an operation was to be performed, but nothing was asked by her or said to her about the nature of the operation. The immediate effect of the operation was nil; as to the remote effect, the woman to-day, nine months after the pseudo-operation, without any other treatment whatever, is free from pain at her menstrual periods, and the vaginismus so much relieved that sexual intercourse, almost intolerable before, is readily indulged in without inconvenience.

Mrs. X., a blonde German-American, aged twenty-seven years, married, has had three children and no miscarriages. Occupation before marriage, domestic; family history negative; no serious illness during childhood; first menstruation began on her sixteenth birthday, and the suffering was such as to confine her to bed for a week; second menstruation at about seventeenth birthday, and the third occurred six months later; then an interval of three months elapsed, and from that time on menstruation was always regular and always accompanied by sufficient pain to compel going to bed for a few days. These pains were described as "cramplike" and "bearing down," with tenderness over the whole lower part of the abdomen, and they were occasionally present in a less degree between the monthly periods. At the age of eighteen the patient married, being at that time in good general health and weighing one hundred and fifteen pounds. Dyspareunia was marked, and continued so even after the normal delivery of the first child, fifteen months after marriage. The menses occurred at once after the birth of this child, and were as painful as before. At the end of another fifteen months another child was born in normal labor, but this was followed by an amenorrhœa of eighteen months' duration. During the first six months of this period she was free from pain, but thereafter she complained of occasional severe, cramplike pains, much local tenderness, and increased vaginismus, despite the absence for twelve months of the monthly flow.

With the return of the menses she had to take to bed for two weeks, and was compelled to repeat this for a few days of every month during the next three years, at the end of which time the third child was born. The patient said that while carrying this last child she suffered considerable pain in the region of the ovaries and uterus. That labor occurred four years ago. The amenorrhœa of lactation lasted for six months, and the re-establishment of the menstrual flow was accompanied by no marked inconvenience, but thereafter the old trouble returned with renewed vigor.

I was first called in to see this woman about a year and a half ago, and at that time I found her in bed undergoing the usual monthly ordeal. She was moaning with pain in the pelvis and inclined to toss about in the bed; face was flushed, pulse rapid, temperature apparently elevated (the thermometer not being used at this time), tongue slightly coated, and the bowels not full—constipation never having been a part of her ills. There was such a marked hyperæsthesia that slight pressure on the abdomen with the palm of the hand caused convulsive jerking and outcries; this sensitiveness was the most marked over the ovaries. In the hope of quieting the patient sufficiently to admit of a vaginal examination, a hypodermic injection of morphine was administered, but, the effect not being favorable, the examination was deferred until the flow should cease. This occurred some days later, and then an intense vaginismus was revealed, so that the finger could scarcely be tolerated at the vulva. A thorough digital and speculum examination was, however, effected in consultation with Dr. H.

* Read before the Iowa State Medical Society, May 18, 1894.

F. Ewers, and beyond extreme sensitiveness and some enlargement of both ovaries, nothing pathological was discovered. The uterus was normally large and in good condition. The presence of an unusual number of carunculae myrtiformes and a little cicatricial tissue about the fourchette gave rise to the suggestion by Dr. Ewers that their removal might relieve the vaginismus, and they were accordingly clipped off; but this procedure yielded no appreciable result. Dysmenorrhœa continued with one additional symptom—viz., an occasional chill and rise of temperature which gave rise to the first suggestion by a consultant of possible pyosalpinx. At one such period the thermometer registered 104°.

For about nine months the woman went through a trial of most of the remedies usually given for her condition, but, as she could not take morphine in any form, fortunately escaped the horrors of the morphine habit. Vaginal douches were also precluded, because the introduction of the syringe tip was very painful, and the douche itself more irritating than quieting. During the interval between menstruations the vaginismus and hyperæsthesia were pronounced, but not nearly so much as at these periods.

About ten months ago the proposition to remove this woman's annexa was seriously set forth as the only curative means. About this time there were reported a number of cases of failure to relieve the symptoms by this operation, and as I was by no means satisfied in my own mind as to the rôle which hysteria was playing in this case, I suggested to my friend Dr. Ewers that we try the play of Hamlet with Hamlet left out—in other words, that we do an imaginary laparotomy.

The patient was taken to the hospital as above mentioned, at a time midway between her menstrual periods, and put to bed for two or three days. On August 24th an incision about four inches long was made, not quite down to the peritonæum and closed with interrupted silk sutures; some little cicatrix of the fourchette was snipped off, and the cut edges were approximated with two silkworm-gut sutures. The abdominal sutures were removed on the third day. The patient left the bed about the tenth day and the hospital in about three weeks—there being, of course, no necessity for so protracted a stay except to carry out the plan originally adopted.

At this time the patient's weight was eighty-nine pounds. Her first menstrual period after leaving the hospital was painful, but markedly less so than any previous one. From this time on the successive periods became more and more tolerable; the hyperæsthesia rapidly subsided. Within three months she indulged the sexual demands of her husband with but little discomfort, and a few days ago, nine months after leaving the hospital, she informed me that the sexual act was accompanied by no pain. Her menses occur regularly and normally every month, and she has not taken to the bed once during this time, but, on the contrary, goes about her household duties the same during the menstrual as the intermenstrual period, and last month did her own laundry, washing for the first time in years. She has gained fourteen pounds in weight since the operation, and, to all practical intents and purposes, is enjoying good health.

In answer to the probable suggestion that this was a simple case of hysteria, I will remark that the woman belongs to the laboring class, where morbid desire for an operation is not to be looked for; she was much attached to her husband and two children and would not leave them to go to a hospital from any whim, and the expense alone incurred in the undertaking would have deterred her from going on ordinary hysterical grounds.

A prominent Chicago gynecologist has suggested that

the vaginal cicatrix may have caused the vaginismus and other reflex symptoms. But it must be remembered that this cicatrix was the result of parturition, while the vaginismus dated from the day of marriage. One of the most singular features of the case to me is the coincident rise of temperature at the monthly sickness. There has been nothing of this noticeable since the operation, hence it must be considered, for want of a better explanation, another nervous symptom.

A CASE OF MYCOSIS OF THE PHARYNGEAL TONSIL.

By JOHN DUNN, M. D.,
RICHMOND, VA.

Mycosis of the pharyngeal tonsil has been observed by Schubert and Liebenmann (Bosworth, *The Throat*, p. 189): "In both cases," says Bosworth, "it should be stated that the growth was aspergillus." The contributions on the subject of mycosis of the fauces have been more or less numerous since Fränkel's first report in 1873. These, however, so far as I am aware, deal only with the development of the fungous growth on the tonsils, faucial and lingual, and on the soft palate (?). I can find no record of a case of mycosis of the pharyngeal tonsil where the disease was due to the presence of the spores of *Mycosis leptothrix*. The following case, then, although occurring in the course of an attack of faucial mycosis, may be of some interest:

Miss V., aged twenty-four years, seen for the first time January 23, 1894, showed an abundant development of *Mycosis leptothrix* on both faucial tonsils, throughout their whole extent, from the junction of the anterior and posterior pillars to the base of the tongue. The tonsils were not hypertrophied. There were on the right side of the pharynx several small areas of mycosis in the chain of lymph tissue which extends up the pharyngeal wall adjacent to the posterior pillar. The most abundant growth of this fungus, however, was in the lingual tonsil, where apparently almost every aggregation of lymph tissue had its mass of whitish growth protruding from it. Some of these masses projected as much as two or three millimetres from the tissue beneath and were fully a millimetre in diameter. They extended as far down as the glosso-epiglottic junction. There were also one or more mycotic areas in the lymph chain which extends along the outer boundary of the pyriform sinuses. These mycotic masses did not coalesce, but each one existed for itself. Examination of the post-nasal space revealed several whitish masses on the surface of the pharyngeal tonsil. They did not, however, present the same appearance as those in the lingual or faucial tonsils. It was apparently a deposit of the fungi from the air passing through the nasopharynx, as, indeed, was the case, for they would be present some days, absent others, showing clearly that they had no firm hold in the pharyngeal tonsillar tissue. These whitish masses were, however, large, perhaps a millimetre in surface diameter. There is one point to notice here. Although there were the usual sensations of fullness, of a foreign body, of stuffiness of the lingual and faucial regions, there were no unpleasant sensations referable to the naso-pharyngeal space. Miss V. was under treatment until April 8, 1894; about the middle of March she began to complain of "a new sensation" in her throat: "It feels as though the trouble had gone up behind my palate." Examination proved this statement to be true.

In the pharyngeal tonsil were four mycotic areas having their base distinctly in the body of the upper pharyngeal lymph tissue. These areas presented the same appearance as similar areas in the lingual or faucial tonsils. They were deep in the tonsillar tissue and could not be brushed off. Accompanying their development there was a considerable amount of swelling of the adjacent lymph tissue.

As the patient was an intelligent woman and anxious to be rid of the annoyance the presence of this fungus caused, and as she was under active treatment for two months and a half, some remarks about the results of the various methods resorted to for the purpose of destroying these fungous growths may not be uninteresting. Internally, both acids and alkalies were administered at different times, in addition to the local treatment, in the hope of influencing the growth of this fungus. No result referable to either was obtained. Were local treatment omitted for two days, there was always a marked increase in the size and number of the mycotic areas. Gargles, washes applied with mops by patient, spraying, and applications of the usual essential oils, of boric acid, of soda preparations, of bichloride solutions, of creosote solution, proved all of little value when treatment applied directly to the mycotic areas was neglected. Mopping the base of the tongue resulted in the causation of constant nausea, and had to be desisted from. Nor is it difficult to see why the above local applications failed to effect a cure in a disease the greater part of whose area of distribution they failed to reach, while the most powerful of the above remedies, applied as sprays or gargles, could affect only the outer layers of the mycotic masses. Tincture of iodine was applied locally to individual areas. It was found to have no especial value, and could not be confined to the fungous growths, while its tendency to irritate the adjacent mucous membrane made its continuous use unadvisable. The use of nitrate of silver in solutions of varying strength was found also to have more disadvantages than advantages. Nor could pure alcohol be used as a remedy with good hopes of obtaining a cure. Bichloride of mercury (1 to 1,440) was used, and the results obtained did not justify its continuance. The greater part of both faucial tonsils was removed with the cold snare; but it was found that the mycotic areas extended deeper into the tonsillar tissue than it was safe to cut, and also into regions in which the cold snare could not be used with advantage—*e. g.*, close behind the anterior pillar, exteriorly. The remaining areas were burned out with the electric point. I was not long, however, in discovering that surgery alone was unavailing in this disease, as a tonsil, upon which could be seen no mycotic areas to-day, would, if neglected for two or three days, again be filled with them. On the lingual tonsil I began by snaring the individual lymph areas containing the mycotic masses. A certain proportion of these diseased areas could thus be easily removed. (I have a special snare cannula made for this purpose.) There were, however, other areas to remove which, owing to their position, would require the removal of more lingual tissue than the presence of the leptothrix would justify. These I burnt with the electric point. I found out here, as in the case of the faucial tonsils, that the disease seemed to recur almost as rapidly as it was removed, and if neglected for even a day showed marked increase. Furthermore, the continued irritation of the base of the tongue from this treatment caused, as did the mopping, a pretty continuous nausea, so as to render manipulation of the root of the tongue impossible, as vomiting would result as soon as it was touched. I noticed one thing, however: that the three or four mycotic areas which were, on the patient's first visit, in the lateral lymph chain—*i. e.*, in the post-pharyngeal wall adjacent to the posterior faucial pillar—and which were burned out with the electric point, did not recur. This led me to the belief that

the snare and cautery used in the faucial tonsils and on the base of the tongue had destroyed only the surface portion of the growths, and that the recurrence took place from deeper portions, which remained undestroyed. And this I found to be the case. About the middle of March, the patient having been in almost daily attendance at my office, I found that while I had succeeded in greatly diminishing the total number of mycotic areas, I was far from obtaining a cure, inasmuch as a day's neglect of treatment would put the throat three or four days further from a cure, so rapidly did the leptothrix multiply. It occurred to me that a solution of permanganate of potassium might be useful. A saturated solution was accordingly prepared, and a direct application was made to the mycotic areas; a bent probe and cotton was used for the purpose. The result was a pleasing one. The stain made by the permanganate on the mucous membrane was rapidly washed off by the changes in the epithelial cells, while the projecting mycotic masses became shriveled and stained a deep black, and retained this stain for several hours. The fauces generally were then washed out with this solution. I found, too, that the permanganate has the power of destroying the free fungi in the upper air-passages, of destroying as far as it reaches the mycotic masses, and, further, if I may judge by results, has the power of penetrating more deeply into the crypts whence these fungous growths spring than any other substance I experimented with. The applications were made twice daily, and I could notice from day to day that the number of diseased areas became fewer and fewer, until on April 8th, when the patient returned to her home in the country, the tonsils for more than a week had shown no mycotic growths; the nasopharynx was free; so was the base of the tongue, if we omit several minute areas which showed their existence by the stain left after the use of the permanganate. The mycotic areas in the pharyngeal tonsil were removed with Löwenberg's adenoid forceps. The fungous growth was found to extend into the lymph tissue of this region to the depth of two or three millimetres, the removed lymph tissue showing this.

Repeated microscopic examinations, made by myself, of these fungous masses showed them to consist of the rod-like bodies of different lengths, leptothrix, some granular matter—which, however, was small in amount to the proportion of epithelial cells—while the whole was swarming with myriads of minute bacteria of the monad form. I found that the fungi could be most readily demonstrated and that their outlines could be most plainly seen when prepared as follows: Place some of the growth on a slide; drop over it two drops of a saturated solution of permanganate of potassium; over this place a cover glass; press this firmly down. The permanganate solution gives a purplish color to the general field, staining more or less deeply the epithelial cells, while the fungi remain without stain and can readily be distinguished. It will be seen that the leptothrix form of the schizomycetes does not move at all, while the monad form is in constant motion. Care should be taken not to confound the leptothrix fungi with the permanganate crystals. There was one other point I noticed while treating this disorder—*viz.*, the appearance of minute hæmorrhages into the mucous membrane of the soft palate. These hæmorrhages varied in number from time to time, bearing a direct relation, it seemed to me, although I could not decide this point accurately, with the increase or decrease of the severity of the mycosis.

As the result of my experiments in this case, I would advise in faucial mycosis the following line of treatment: Removal of the larger masses by means of forceps—*i. e.*, grasping and pulling them out as far as possible (and some

of the masses were so firmly adherent that they broke, while others caused the tonsil to bleed slightly); the use of the cold snare for the very large masses; to this, and more important than both of the above methods, is the use of permanganate of potassium, saturated solution. This is to be applied directly to the mycotic areas by means of a probe and cotton twice daily. The nasopharynx and fauces should at the same time be sprayed with a solution of the permanganate. This last is important, as it helps to remove the fungi in the air in the upper air-tract and those on the surface of the mucous membrane. A fresh solution should be made at each sitting. I used for the purpose a drachm bottle with a large mouth. In this way only the necessary amount of the solution was prepared at a time.

And as to the cause of pharyngeal, or what should, I think, more properly be called tonsillar mycosis, for it shows itself only where there is massing of the lymph tissue—i. e., in the faucial, pharyngeal, and lingual tonsils and the lymph chains connecting these tonsillar areas. This case seems to show that it is not the result of blood conditions, but is local in its origin. Miss V. has had during her life "diphtheria three times," and dates the existence of the annoying sensations, whose cause she did not know, in her throat from the last of these attacks, some years ago. Both the leptothrix and the monad forms are of more or less common occurrence in the mouth. I have found them in scrapings from the base of the tongue, in the neighborhood of the taste buds, in a case where an undue collection of mucus in this region was the patient's chief symptom; in this case there were no mycotic masses, no "growths," and the fungi existed individually. There was, however, more or less hypertrophy of the lingual tonsils. I have found them in the whitish "exudates" from the tonsil, where more or less lymphoid hypertrophy existed, and here both leptothrix and monad forms were so numerous as to make justifiable the diagnosis tonsillar mycosis, although there were at no time more than two of these mycotic masses in sight, and these confined to the faucial tonsil. It is thus shown that these fungi are of frequent occurrence in the mouth.

A word in regard to the cause of their growth and the production of such numbers as to constitute a disease. I think this must be sought in the changes occurring in the epithelial layer of the mucous membrane of the tonsils. (I use the word in its general sense.) There is more or less rapid proliferation of the epithelial cells in cases of inflammation of the adenoid layer (tonsillitis). The cells on the surface of the tonsils are washed off by friction as they form. The new epithelial cells forming in the tonsillar crypts are not thus carried away. The swelling accompanying the inflammation of the lymph layers may to a greater or less degree occlude the natural exit of these crypts, thus causing the retention of the cast-off epithelial cells. The leptothrix finds its way into this "stagnant pool"; it multiplies and, as it is a surface fungus, it finally increases to such an extent that the individual fungi next the epithelial layer push before them and out of the crypt the older fungi as well as the cast-off epithelial cells. That this is the explanation of the growth of these whitish

masses, I think, is shown by the great numbers of more or less perfect epithelial cells found in these masses, as well as by the fact that they color and retain so long the permanganate stain, while the leptothrix itself does not take up this stain. These masses, although they project from the exit of the crypt, so occlude it as to make it impossible for the usual remedies to reach more than their surface. There is one other point. It seems not unlikely that the monad form develops into the leptothrix form, inasmuch as this latter form is found in every length, from the monad to a length sufficient to extend half way or more across the focus field. And, moreover, the shorter forms of the leptothrix are found even in the permanganate solution to have more or less motion, although the longer forms are motionless. It is accordingly doubtful whether a permanent cure in these cases of tonsillar mycosis can be obtained unless the epithelial layer of the mucous membrane lining the crypts be put first into a healthy condition.

THE EAR

AS A FACTOR IN CAUSING CEREBRAL DISTURBANCE IN
INTESTINAL AND OTHER DISORDERS OF INFANCY.*

By JAMES L. MINOR, M.D.,

MEMPHIS, TENN.

I HAVE frequently heard my friends in general practice deplore the advent of cerebral complications in intestinal disorders of infancy—not alone on account of the more serious phase assumed, but also because the added symptoms are obscure, and the physician is powerless to deal with them.

The pathological chain is supposed to depend, in some cases, upon the oversensitive condition of the convulsive and other centers in childhood, which are easily stirred into explosive action by reflex irritation from the intestinal nerves, or through the digestive ferments which have been absorbed by the blood and act directly upon these centers, while other cases are due to false hydrocephalus.

I have seen two such cases, in which I succeeded in tracing the cerebral symptoms to acute inflammation of the middle ear, and in affording relief by treating this organ.

Whether my experience was the exception—a mere coincidence—or due to the fact that ear disease is often enough associated with intestinal disorders to be considered a causal agent in producing cerebral disturbances in any proportion of cases, must be determined by future observation.

Certainly one need not go far in search of reasons why there might be some connection; for aside from the frequency of ear disease in infancy, it is easy to conceive that the condition of the mucous membrane of the digestive tract may extend to that of the nasopharynx and ears.

However, it is a question which can be easily settled if the ears of all infants suffering from intestinal disorders be examined on the advent of cerebral disturbance. It is not difficult to recognize inflammation of the middle ear. Only a head mirror and an ear speculum are necessary,

* Read before the Tennessee State Medical Society, Memphis, Tenn., April 10, 1894.

and the ability to see the drum membrane, which is parchment-like in health and red and injected when the ear is inflamed. I may add that the treatment is usually simple. Most cases will yield to the hot douche and a few drops of a mixture containing one part of chloroform to seven of olive oil.

Trusting not only that my experience will be of interest to you, but that it will excite you to further investigation as to the part played by the ear in causing cerebral disturbances in infantile diseases, whether intestinal or not. I think it possible that some cases of scarlet fever and measles with cerebral symptoms owe much of their malignancy to disease of the ears, and I trust that your observations may extend to these cases as well.

CASE I.—A. R., aged two years, February 2, 1892. Acute intestinal derangement with cerebral complications. The attack had been ushered in, about a week before, with the usual symptoms of peevishness, restlessness, disturbed sleep, appearance of distress, fever, frequent pulse, purging, vomiting, distended abdomen, etc. About the third day there were slight convulsive seizures, increased restlessness, frequent crying, rolling from side to side, scratching the face, pulling and boring at the ears, sluggish pupils, and vacant stare. I was called in at this stage by Dr. S. A. Rogers to see if ear trouble existed, and found subacute inflammation of the middle ear on each side. I inflated the ears with Politzer's air bag and douched the ears with hot water. The child, which had been fretful and without natural sleep for some days, dozed off while the douche was being used, had a good sound nap of some hours' duration, and awoke much improved. Under this ear treatment alone, with proper attention to diet, the child made an uninterrupted recovery in less than a week. There was no return of cerebral symptoms.

CASE II.—M. R., aged a year and a half, November, 1893. Acute intestinal derangement with cerebral complications. The history was similar to that of Case I, except that all of the symptoms were more pronounced. The convulsions were frequent, numerous, severe, and of epileptoid character. The rolling of the head was almost continuous. The pupils were sluggish, sometimes dilated, sometimes contracted, and at times the two would be of different size. There was a vacant stare; she seemed to know no one; she ate only when food was put in her mouth. The pulse was frequent and weak, and the circulation poor. The temperature ran a most erratic course—rising to 104° or more, and falling to or below the normal—doing this rapidly, frequently, and without reason or regularity. The condition was considered most serious. Dr. S. A. Rogers called me in to see if I could detect any ear trouble.

I found acute inflammation of the middle ear, with a bulging drum membrane on the left side and subacute inflammation on the right. I evacuated the pus on the left side by a paracentesis of the drum, inflated the ears with Politzer's air bag, and used the hot douche. Relief was marked. The child went to sleep and slept naturally for the first time in some days. Appetite returned and she acted naturally again. Under this ear treatment alone a perfect recovery was made in about ten days. A few slight convulsive seizures were experienced before this end was reached, but they coincided with exacerbations of the ear trouble and subsided when the ears were relieved.

Since writing the foregoing I have seen in the last (March) number of the *Universal Medical Journal* an article which I append:

On the Frequency and Importance of Otitis Media in Sick Children.—Dr. Rasch, of Copenhagen, has examined the middle ear in sixty-one post-mortem examinations of children up to two years of age. The middle ear was normal only in five cases (eight per cent.); in forty-six cases (75.5 per cent.) suppurative otitis media was found in either one or both ears, and in eight cases (14.5 per cent.) simple catarrhal otitis media was present. Otitis media was observed in nearly all the children who had died of broncho-pneumonia (forty-three cases), but had not been diagnosticated during life on account of the membrana tympani being rarely perforated, although pus was found in seventy-seven per cent. of these cases. Several of the children had exhibited brain symptoms, sometimes so marked that meningitis was diagnosticated during life, while the post-mortem examination revealed no affection of the brain or its membranes; the author therefore calls attention to this source of error in diagnosis in cases of broncho-pneumonia. In forty-three cases the exudate was examined more minutely, and in thirty-three of these pneumococci were present. Whenever pneumococci were found, the tympanic membrane was without perforation. Perforation of the membrane was, on the whole, a very rare occurrence, appearing only in four of the sixty-one cases examined. The author is inclined to believe that broncho-pneumonia in infants plays a rôle in the ætiology of deaf-mutism, the otitis media extending to the internal ear.—*Hospitals-Tidende*, Nos. 18–20, 1893.

THE INSANE.

ASYLUMS AS THE PROPER PLACE FOR
THE TREATMENT OF ALIENATION OF THE MIND.

BY JOSEPH J. O'CONNELL, M. D.,

EXAMINER OF THE INSANE FOR THE
DEPARTMENT OF CHARITIES AND CORRECTIONS, KINGS COUNTY, NEW YORK.

PRACTITIONERS are often called upon to treat patients with diseased minds, and are then confronted with this problem: Is asylum treatment more beneficial, or can they be treated and receive equally good care at home? I take the liberty of answering this question from my experience as examiner of the insane for the Department of Charities and Corrections in Kings County, in which capacity I have committed some four or five thousand persons to asylums in New York and vicinity.

The institutions in this State, both private and public, are under the jurisdiction of the State Commission in Lunacy, and the first important step in the advancement of the treatment of the insane dates from the time when commissioners were appointed to supervise the management of these institutions. A few years ago any person, whether physician or layman, citizen or foreigner, could establish a retreat for the insane and employ whatever treatment he pleased with the unfortunates who came under his charge; and it was not always so much a question as to the recoveries effected as it was as to how long could the patient be retained under the plea of insanity—while the revenue came in.

The amount of room allowed to each inmate, or the number over which each attendant should have charge, was never considered. If patients were not overcrowded it was due quite as much to the lack of demand for the extra space which they temporarily enjoyed as to the good judgment of the person in charge. With but few exceptions,

the State and county institutions were no better governed. The superintendents and subordinates were not selected on account of their fitness for the positions, but were appointed through political influence. I am pleased to say that at the present day the public and private asylums in New York State are equal to, if not better than, any others in the world.

The State commission does not grant permission to any individual to conduct a private asylum unless it is in charge of a physician who has had considerable experience in the treatment of the insane and who is well qualified to manage such an institution. These asylums are licensed for a limited number of persons in order that each may receive proper attention and have proper accommodations. The food must be of the best quality, and sanitary requirements are very exacting. Asylums are in the treatment of the insane what hospitals are to the sick, in fact they are a combination of hospital and home.

The insane are very cunning; they often know that their ideas differ from those of the persons with whom they converse; that they are alone in their belief—and for that reason, when questioned by physicians or others, will not answer according to their belief, but in accordance with the ideas of the questioner. At home the family feeling toward them is well known to them, they will refuse to do as those in attendance may request, and will impose upon the good nature of their relatives. If the physician recommends certain work for them to occupy their time and to divert their minds from the subject of their mania, or if walks at certain hours of the day are advised, they feel that their movements are closely watched, and it is useless to try to convince them to the contrary. If these simple recommendations can not be carried out at home, how can any systematic treatment be given without the use of force? And the continued use of force with the insane so affects the nervous system as to render ultimate recovery a doubtful question. The principal rule to be followed is that the insane must be led and not driven, and the only place in which this can be accomplished is in a properly governed asylum.

The estimate entertained of the insane by the public renders it an enemy to asylums. They are supposed to be a wild set confined in a building like wild animals, who are restrained at night by chains or by some other means; that the mild and the violent are placed together, and that the latter are always ready to pounce upon others when they approach them.

It should be considered that the insane are classified; that on entering an asylum they are placed in a receiving ward for several days in order that their form of insanity may be studied by the physician in charge. They are then transferred to wards set aside for the treatment of their special mental disorder, and as they improve they are gradually advanced. The erroneous idea of asylums entertained by the public, as I have stated, prevents the incarceration of many of the so-called cranks who are allowed to roam at large. Their relatives think they are not fit subjects for asylums because they offer no violence to the family and do not break furniture or tear clothes, but only

go about ventilating their hobbies whenever they can find a listener. More harm has come from this class of people during the past few years than from any other class of insane. The attacks upon a banker in New York and upon the late mayor of Chicago are still fresh in the minds of the public. In both cases the progress of the disease was slow, but so well marked that the peculiar actions and ideas of the individuals were known to their relatives and friends months prior to the commission of their crimes. These are but a few of the many cases in which home treatment was used, and the relatives of these individuals are responsible for the delayed action. Immediately after the commission of the above-mentioned crimes applications made by persons for the committal of relatives to insane asylums in Brooklyn were very numerous, and the examiners for the Department of Charities and Corrections made commitment papers for thirty-five persons in one day and twenty-seven in another. This proves that, but for the crimes referred to, these people would have been allowed by their relatives to roam the thoroughfares as usual had they not been brought to their senses by these outbreaks.

It must not be forgotten that insanity is often communicated from one member of the family to another when there is an hereditary basis for its development, and in such families very prompt action is necessary. Two cases illustrating this came under my notice as examiner of the insane. One was that of a young widow who had been living alone for six months in a small shanty. During this time she became affected with paranoia, and gradually grew worse until her neighbors summoned a sister to care for her. This sister, a quiet, intelligent girl, took charge of the insane woman for four weeks, when she also became the subject of the same form of insanity, and both were committed to an asylum. Applications have been received at the department from mothers to have their daughters committed to an asylum for the insane, and when they have been visited by the physicians at their homes, and the mothers questioned as to the history of the case, it has been found that the mother had more delusions and hallucinations than the daughter whom she wished to have committed.

A CASE OF SCROFULODERMA VERRUCOSUM.*

By CHARLES E. NAMMACK, M. D.

The case presented was brought to my class at the New York Hospital, Out-patient Department, by Dr. Dewitt C. Romaine, for conference regarding its nature and treatment, with the following history: Child is seventeen months old, one of twins, and still a nursling. The other twin died at fifteen months of broncho-pneumonia. Both were delicate since birth. No history of syphilis or tubercle obtainable in family. This child presents the clinical history and present physical condition characteristic of rhachitis, which need not be detailed here. The unusual feature of the case is the presence of skin lesions, the exact counterpart of which the writer has not before en-

* Read before the Section in Pediatrics of the New York Academy of Medicine, April 10, 1894.

countered in a dispensary and private practice of thirteen years, which embraced annually a large number of sick children.

The eruption is distributed over the face, neck, belly, legs, and buttocks in irregularly shaped, variously sized patches, covered with thick, darkish crusts. On removing the crusts, the underlying surface is seen to be made up of pale granulations, which bleed readily and have a verrucous appearance. They look like the papillæ of the skin drawn out, and can be touched without evidence of pain on the part of the child. It is stated that the baby makes no attempts to scratch. The eruption is evidently but an expression of the child's general condition, and is therefore classified as a scrofuloderma.

Crocker (edition of 1888, p. 410) uses the term scrofuloderma to include the various forms of suppurating dermatitis which attack strumous persons; but there has never been suppuration in this case, nor has the infant ever had suppurating lymphatic glands. Duhring (second edition, p. 453) speaks of the condition existing in our case as one of the rarer varieties of scrofulous cutaneous lesions, and says that it must be distinguished from the verrucous variety of lupus vulgaris. A. R. Robinson (*Manual of Dermatology*, p. 505) describes these papillary or fungoid growths as closely resembling lupus verrucosus. George T. Jackson, whose little work (*Diseases of Skin*, Lea Brothers & Co., 1892) is a mine of condensed information, classifies both lupus verrucosus and scrofuloderma verrucosum as simply varying aspects of the disease tuberculosis verrucosa cutis, but evidently has in mind particularly the pathological condition occurring on the hands of butchers and post-mortem attendants most frequently (*ibid.*, p. 505), the so-called "tuberculum anatomicum." McCall Anderson (*Diseases of Skin*, Charles Griffin & Co., London, 1889, p. 588) gives a clear description of the condition present in our case, with its differentiation from tubercular syphilitic eruption, under the name of scrofuloderma verrucosum. J. L. Milton (*Diseases of the Skin*, Henry Renshaw, London, 1890, p. 393), whose writings are nothing if not dogmatic, states that the condition described by Anderson is unknown to him, although his title page bears the imprint "Senior Surgeon to St. John's Hospital for Diseases of the Skin." Shoemaker (second edition, p. 605) states that the only cutaneous lesions that are characteristic of scrofula are the ulcerative, or those which are the secondary results of scrofulous involvement of the subjacent lymphatic glands. He also speaks of the ætiological relationship between scrofuloderma, lupus vulgaris, and tuberculosis cutis. J. N. Hyde (second edition, p. 491) says that it is now understood that these disorders are identical as regards the bacillus, but different clinically. Crocker (edition of 1893, p. 544) regrets that this pathological unity allows the term tuberculosis of the skin to be used loosely, to the detriment of accurate clinical description. Hardaway (*American Text-book of Diseases of Children*, p. 1086) describes three different forms of skin trouble which occur with considerable frequency in those who are affected with the tuberculous diathesis, but does not mention the variety here shown.

None of the atlases consulted contains any plate of this variety of strumous manifestation, and its rarity is thought to justify its presentation here.

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TRICRESOL AS AN ANTISEPTIC.

IN the July number of the *Therapeutic Gazette* there is an article by Dr. E. A. de Schweinitz on the use of tricresol as an antiseptic for collyria in which he remarks that up to the present time the chemical sterilization of collyria has been rather unsatisfactory owing to the fact that such antiseptics as carbolic acid, corrosive sublimate, and mercury cyanide cause irritation of the eye if they are used in solutions strong enough to be efficient. It has occurred to Dr. de Schweinitz that tricresol might be free from this objection, and to test its value he made two solutions of tricresol in ordinary Potomac River water, the first in the proportion of 1 to 500 and the second in the proportion of 1 to 1,000. At the end of forty-eight hours it was found that the stronger solution gave rise to no growth when inoculated in peptonized beef broth, and the weaker solution gave rise to no growth on the fourth day. A 1-to-1,000 solution in distilled water, inoculated in peptonized beef broth, agar-agar, and potato, yielded no growth after thirty minutes. The effect of this solution upon the eye was tested by dropping it into a rabbit's eye and also by injecting 0.1 of a cubic centimetre into the anterior chamber. The instillation did not cause the slightest irritation. The injection of the 1-to-500 solution caused moderate reddening about the point of puncture, which disappeared in two days without any general inflammation. The injection of the 1-to-1,000 solution produced very moderate hyperæmia in the ciliary region, just above the point of injection, but not more than might be expected from simple puncture of the cornea, and this disappeared within twelve hours.

The three solutions most liable to contamination in a short time, among those in common use by ophthalmologists, says Dr. de Schweinitz, are those of cocaine, atropine, and eserine. He made solutions of these drugs, of the strength of four per cent. of cocaine hydrochloride, a grain to the ounce of eserine, and four grains to the ounce of atropine, tricresol water being the solvent employed. He found that these solutions remained practically free from bacteria, also that they were not irritating when dropped into the eye. He therefore thinks it would be advantageous to use tricresol water, 1 to 1,000, as a solvent of such drugs, and thinks that in many cases the tricresol solution in the strength of 1 to 500 could be used to greater advantage. This stronger solution, dropped into his own eyes, produced no burning whatever. He suggests also that tricresol would be found a good antiseptic in general ophthalmological practice.

In an editorial article in the same journal the writer speaks

of a paper entitled *The Germicidal Value of Tricresol*, read by Surgeon Walter Reed, of the army, at the fourth meeting of the Association of Military Surgeons of the United States, held in Washington last May. After briefly reviewing the various commercial preparations of the coal-tar derivatives, such as aseptol, creolin, lysol, solveol, solutol, saprol, etc., says the writer, Dr. Reed called attention to an article on creolin and its active constituents by A. Henle, published in the *Archiv für Hygiene* in 1889. Dr. Reed says that it was a valuable observation of Henle's that cresol, as well as phenol, would dissolve easily in soap water, and especially valuable was his conclusion that the germicidal efficiency of creolin was due to some substance contained in the tar oil from which it was made, and that that substance stood very near to cresol. Inasmuch as creolin contains so little phenol and yet exhibits a high disinfectant power, it was natural that Henle's attention should be directed to the insoluble hydrocarbons, the homologues of phenol, contained in tar oil. Dr. Reed accords great credit to Dr. Laplace, of New Orleans, for the work done by him bearing on this subject. It seems that in 1888, while working under Koch, Laplace mixed equal volumes of crude carbolic acid and concentrated sulphuric acid, and thus obtained a dark syrupy liquid which was readily soluble in water and possessed remarkable power as a germicide. A two-per-cent. watery solution of the mixture destroyed anthrax spores in seventy-two hours, while a two-per-cent. solution of either carbolic acid or creolin was absolutely without influence upon them. This discovery, Dr. Reed says, was the first step in the evolution of the germicide which is now attracting so much attention in Germany. Fränkel, in 1889, confirmed and extended Laplace's observations, and showed that the body evolved by mixing carbolic and sulphuric acids was cresol. Since then the cresols have been studiously investigated in Germany by chemists, bacteriologists, and surgeons.

The cresols differ from phenol by having one atom of hydrogen replaced by the methyl group CH_3 . There are three of them—orthocresol, paracresol, and metacresol. The first two are crystalline and the third is a colorless, thickish liquid boiling at about 201° centigrade. A combination of these three cresols, now obtained in a pure state from coal-tar, constitutes tricresol, which is a white liquid, of a creosote-like odor, having a specific gravity of from 1.042 to 1.049, and soluble in water to the extent of 2.55 per cent. Its solutions are clear, says the writer, and, unlike those of carbolic acid, do not cause numbness of the operator's fingers and hands; they are also said to be less irritating to wounds than either carbolic acid or mercury bichloride solution. Grüber and Reed are cited as bearing strong testimony to the great value of tricresol as a germicide. It is said that a one-per-cent. solution of tricresol proves fatal invariably to the pyogenic cocci in half a minute, but if solutions of the same strength are rich in albuminous constituents it requires a minute and a half to destroy the *Staphylococcus aureus*. This unusual promptness of its action, even in the presence of albumin, is an important point in its favor as compared with the older germicides. Its poisonous

quality is rated as slightly less than that of carbolic acid, but since a one-per-cent. solution of it does the work of a five-per-cent. solution of carbolic acid, the danger of poisoning from it is greatly diminished.

CHLORALOSE.

In the July number of the *Practitioner* Mr. Charles Flemming sketches his experience with this drug and states his impression that it is practically a pure hypnotic, meaning a drug of which the dose sufficient to produce sleep affects the psychical element directly and solely. In his summary he says that we may expect to do good with chloralose in all forms of functional sleeplessness, in the insomnia of psychical excitement, hysteria, neurasthenia, overwork, and functional cardiac irritability, and in attacks of epilepsy and somnambulism. Secondly, he thinks its use may enable us to distinguish objective from subjective pain, and so help, for example, in the diagnosis of some forms of hysteria. He has found chloralose of no use in the sleeplessness of alcoholic excitement, multiple neuritis, cerebral hæmorrhage, or any painful organic lesion or peripheral irritation. In the insomnia of the insane, where there is depression, it is said to be useful if given in large doses. In the early stages of Bright's disease, chloral hydrate, owing to its effect on the blood pressure, is probably more efficient.

Mr. Flemming seeks to mark plainly the limits to the use of this new hypnotic, in order to save it, if possible, from what he terms "the worst curse of a new drug—that of becoming a fashionable favorite, and, like other fashionable favorites, having to heal all things and all men, with a success that is more commercially profitable than therapeutically useful."

It is not to be forgotten that several cases of unpleasant and even alarming symptoms following the use of chloralose have been reported. A striking example was lately brought to the attention of the Paris *Société de thérapeutique* by M. Tournant. According to the account given in the *Union médicale* for July 5th, the prominent manifestations in this case were general tremor, inability to open the eyes, deafness, incoherence of speech, inability to rise from the bed, nausea, coldness of the surface, dryness of the tongue, feebleness of the heart's action, and involuntary urination and defecation. The patient was a diabetic, sixty-one years old, and he had taken about six grains of the drug in two doses at an interval of fifteen minutes.

UTERINE TRACHELORRHAPHY.

It is somewhat remarkable that in that portion of the proceedings of the recent meeting of the American Gynecological Society reported in this issue of the *Journal* so much was said in opposition to Emmet's operation of repairing lacerations of the cervix uteri, and hardly a word in its favor. There is no doubt that this operation has been performed, in reality or in pretense, in many instances where nothing of the sort was necessary or even justifiable—we say in reality or in pretense, for the spectacle is not unknown of the steps of this operation be-

ing gone through with in a large hospital in a case where some at least of the bystanders, all professional gynæcologists, could see no evidence of laceration. It is an operation that has been "worked for all it was worth," to use the expressive slang of the day, and a reaction was unavoidable; still, we think that what was said at the meeting referred to showed that the pendulum had swung too far in its recoil. In spite of the abuse of the operation, and in spite of our conviction that the notion that cicatricial tissue in the cervix plays a leading part in giving rise to the symptoms attributed to the injury is not very well founded, the fact that trachelorrhaphy does cure the symptoms imputed to cervical laceration in an overwhelming majority of instances has been too firmly impressed by experience upon the minds of most of our practical gynæcologists to allow them to give it up. We believe that it will continue to be practiced, and that its continued practice will be admitted in the long run to be justifiable.

MINOR PARAGRAPHS.

MORE NEWSPAPER MEDICINE.

A LONDON dispatch to the newspapers speaks of an American who was found dead in the slums of Glasgow recently, and adds that the post-mortem examination of his body showed that he had died from fright. We should like to know what the post-mortem signs of fright are. Newspaper medicine is almost always amusing, but generally without intention; an entertaining example of intentional humor in connection with medical matters was given in an editorial article recently published in the *New York Times*, in which the writer evolved a theory of the American tendency to use middle names. He says: "The middle letter made its appearance in America immediately after the first great epidemic of influenza. We may therefore feel reasonably certain that it was one of the innumerable sequelæ of that exasperating disease. It attacked nearly every boy and girl in the country, and in most cases assumed a chronic form. The recent epidemic of influenza, which has for the last five years devastated the noses and throats of America, has been followed by the development of the middle name in full, and this in its turn will become chronic. The fact that the middle letter appeared in England before the influenza merely shows that so far as Englishmen are concerned the two have no relation to each other. When, on the other hand, we find that immediately after a severe attack of influenza Mr. W. D. Howells becomes 'William Dean Howells,' and Mr. James W. Riley becomes 'James Whitcomb Riley,' it is impossible that we should fail to see that these facts stand to each other in the relation of cause and effect."

THE NEW VOLUME OF THE INDEX-CATALOGUE.

THE fifteenth volume of the *Index-Catalogue of the Library of the Surgeon-General's Office, United States Army*, has just been issued. It carries the vocabulary from Universidad to Vzoroff and contains the eighth addition to the alphabetical list of abbreviations of titles of medical periodicals to which the entries refer. The volume is somewhat thinner than any of its predecessors, and the text consists of only 842 pages. Not only is this reduction of bulk commendable on the score of greater handiness, but it may be interpreted as indicating that there is now needed but one more volume to complete this colossal and inestimable work, for we suppose the remaining matter was found

to be too much for one volume of the usual thickness, and so it was thought best to make two. Dr. Billings is again to be congratulated on the steady progress of his great undertaking, and we are sure there is an ever-increasing appreciation among the medical profession of the great favor he is continuing to confer on everybody who has to look up medical literature.

A MEDICAL CANDIDATE FOR CONGRESS.

THE *Medical Sentinel* states that Dr. John B. Hamilton, of the Marine-Hospital Service, is a candidate for Congress as the representative of a Chicago district. If this is true, we hope he will be elected, no matter from what party he has the nomination. We doubt if there is a better committee-man in the country than Dr. Hamilton would speedily become after entering Congress.

THE "C.—C." COUGH MIXTURE.

AN esteemed correspondent writes to us from Jersey City to ask if the amount of chloroform, fifteen minims, mentioned in our issue for July 14th as being contained in each dose of this mixture is not erroneous, and suggesting that spirit of chloroform was meant instead of chloroform. Our correspondent is correct, and we thank him for calling attention to the error; we should have said spirit of chloroform.

THE SUMMER NURSE.

A CORRESPONDENT writes in exemplification of the satisfaction with which a city physician sojourning in the country for the summer reflects, in case a demand springs up for a nurse's services, that he need not hie himself back to town, but has only to communicate with the Academy of Medicine's superintendent of nurses.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending July 24, 1894:

DISEASES.	Week ending July 17.		Week ending July 24.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	19	7	14	1
Scarlet fever.....	60	8	40	4
Cerebro-spinal meningitis....	2	1	0	0
Measles.....	61	4	37	5
Diphtheria.....	205	50	178	38
Small-pox.....	4	4	4	2
Tuberculosis.....	78	114	273	50

Professor Pettenkofer's Resignation.—A newspaper dispatch from Munich says it is understood in that city that Professor Pettenkofer's resignation from the faculty of the university was brought about by pressure from Berlin, owing to the professor's objections to certain anti-cholera measures recommended by Koch. It is to be hoped that this will turn out to be erroneous.

An International Congress for the Protection of Children, we learn from the *Union médicale*, is to be opened in Bordeaux on July 22, 1895.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from July 15 to July 21, 1894:*

JOHNSON, RICHARD W., Captain and Assistant Surgeon, is granted leave of absence for two months.

MERIWETHER, FRANK T., First Lieutenant and Assistant Surgeon. The leave of absence granted on surgeon's certificate of disability is extended two months on surgeon's certificate of disability.

Marine-Hospital Service.—*Official List of the Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the Four Weeks ending July 21, 1894:*

CARMICHAEL, D. A., Passed Assistant Surgeon. Granted leave of absence for thirty days. July 20, 1894.

GLENNAN, A. H., Passed Assistant Surgeon. To inspect unserviceable property at Delaware Breakwater Quarantine. July 6, 1894.

BRATTON, W. D., Passed Assistant Surgeon. To report at Bureau for temporary duty. June 27, 1894.

KINYOUN, J. J., Passed Assistant Surgeon. To proceed to Cape Charles Quarantine for special temporary duty. June 30, 1894. Designated to represent the Department at the International Congress of Hygiene and Demography. July 9, 1894. To inspect unserviceable property at Boston, Mass. July 17, 1894.

GEDDINGS, H. D., Passed Assistant Surgeon. To report at Bureau for temporary duty. July 20, 1894.

WERTENBAKER, C. P., Passed Assistant Surgeon. To proceed to Delaware Breakwater Quarantine for special temporary duty. June 30, 1894.

YOUNG, G. B., Passed Assistant Surgeon. To inspect quarantine stations. July 20, 1894.

Promotion.

BROWN, B. W., Assistant Surgeon. Commissioned as Passed Assistant Surgeon. July 19, 1894.

Letters to the Editor.

THREE BABIES IN THIRTEEN MONTHS, BORN ON THREE DIFFERENT DATES.

HELENA, MONT., July 11, 1894.

To the Editor of the New York Medical Journal:

SIR: On March 13, 1884, I attended L. M., a colored woman, in her fifth confinement. She was a large, powerful woman, and this labor was both tedious and severe. As is often the case on such occasions, she stated that this would be her last.

On Monday afternoon, April 10, 1885, I was called to attend the same woman and found that she had just been delivered of a well-formed seven-months child, which, however, was dead.

On examination, I found the cord protruding, and, on introducing my finger into the vagina, I could not feel the placenta, but found the os well contracted down on to the cord. After making a bimanual examination I announced to her that there was another child still to be born. However, the pains had ceased and she was resting easy, so I tied the proximal end of the cord which was protruding, and which I had been unable by mild traction to bring further down, and left her.

Calling later in the evening and finding her still resting easy, the pains not having returned and there being no hæmorrhage, I told her it was possible that she would carry the remaining child to full term. This prognosis seemed likely to be

correct until the next Friday, as she rested easy and did well up to that time.

On Friday afternoon I was called again and on my arrival found her in labor. This time I delivered her of a well-formed, healthy-looking living child. I turned the child over to the nurse and gave my attention to the third stage of the labor, and soon removed the placenta. I found a healthy placenta of average size, with both cords attached to the one placenta. The woman made an uninterrupted recovery and the child lived and thrived for a week. When it was a week old it died from her overlaying it in bed.

As Dr. Callahan says in his report of a case, there are not many of these cases recorded, and, as this is the only one of the kind that has come under my observation, I have concluded to report it. The points of interest that I would call attention to are: 1. The length of time between the births of the two children, full ninety-six hours having elapsed between them, and the mother's perfect ease and comfort during the time. 2. The fact that the cord remained in the vagina during all this time without any evil effects. Every precaution was taken to keep the parts clean during this time, but her surroundings lacked a great deal of being as good as they ought to have been; still there was no infection whatever. It was a very interesting case to me, and I trust the record of it may be of some interest to others.

S. C. BALDWIN, M. D.

HYSTERICAL APOPLEXY.

McKEESPORT, July 18, 1894.

To the Editor of the New York Medical Journal:

SIR: In your issues of June 26th and July 14th are reported cases of so-called hysterical apoplexy. I wish to mention one which seems to me to be in the same line.

On June 8th of this year I was called to see a patient who had fallen in a convulsion on arising in the morning. She remained in a semi-comatose condition for eight days. On the second day there developed hemiplegia of the left side, both motor and sensory, which remained for nine days, when improvement rapidly took place, and in two weeks from the convulsion she was perfectly well. The patient was forty-five years old, a married lady. Two years before, she had had a similar attack. There were no evidences of syphilis, arteriosclerosis, or any valve lesion. This case seems to me to have been one of hysterical origin.

F. T. NASON, M. D.

Proceedings of Societies.

AMERICAN GYNÆCOLOGICAL SOCIETY.

Nineteenth Annual Meeting, held in Washington on Tuesday, Wednesday, and Thursday, May 29, 30, and 31, 1894.

The President, Dr. WILLIAM T. LUSK, of New York, in the Chair.

(Continued from page 89.)

The Abuse of Trachelorrhaphy.—Dr. WILLIAM R. PRYOR, of New York, read a paper on this subject. He first described the varying degrees of laceration of the cervix usually found, and then dilated at some length upon their causes. As to the effect of laceration upon the cervix, it was merely a mutilation and could not produce the train of symptoms usually attributed to the accident. The cervix was only a sphincter muscle and its impairment could not be the cause of sterility, which was so often laid to its door. Prolonged labors were the cause of the subinvolution, and not the separation of the cervical fibers. It

was true that cancer was becoming commoner, but, when studied histologically, it was not found to be due to tears in the cervix, but to embryonic tissue in the organ. The operation of trachelorrhaphy he would limit to cases of danger from hæmorrhage and to those in which the tear extended up to the vaginal junction. In such cases the insertion of sutures was a surgical procedure called for. Where there had been extensive tears and there was considerable hypertrophy with deformity, amputation was the operation of choice. The erosions so frequently found, and said to be due to lacerations, should be treated in the same manner as such conditions when found in young girls. He did not favor the sewing up of the cervix, because it did not leave a wide enough canal for future labors.

Dr. H. T. BYFORD, of Chicago, agreed with the speaker entirely and said that there was altogether too much indiscriminate repairing of cervixes. If an operation was necessary on a deformed cervix, Schröder's offered the best results. Where the deformity was great and eversion and erosion were considerable, sewing up would not cure the trouble. Where the tear was deep, sutures should be immediately introduced and the parts drawn together to prevent hæmorrhage and subsequent sepsis.

Dr. BALDY thought that the disease found after lacerations in the majority of cases was not so much due to the injury as to irritating secretions that passed over parts not accustomed to such exposures. For this reason he was in favor of closing up such tears and getting primary union. When it could be done under improved methods, lacerations which caused eversion and erosion should be repaired.

Dr. NOBLE thought that it was a striking statement that one of the speakers had made, that it was normal for women to have lacerations and that they were always present in women who had borne children. He had seen many cervixes from the condition of which alone it would have been impossible to tell whether a child had passed through or not. Some one had said that it was uncommon to find cancer among the colored women in the South. Recent statistics disproved this statement and showed that the negress had cancer in just as large proportion as the white woman. It was a fact that the women who had cancer were usually mothers of large families. The speaker agreed with Dr. Pryor that it was wiser to do Schröder's operation than to do trachelorrhaphy. The lacerations that required operation formed a very small number as compared with the cases that could be treated otherwise.

Dr. GEORGE J. ENGELMANN, of St. Louis, thought that one should be governed entirely, as to operating, by the extent of injury and the pathological condition found. If the rent extended up beyond the crown of the cervix on one or both sides it should be repaired. He did not believe that every cervix was torn in first labors. He had seen many that were not.

Dr. GORDON believed that trachelorrhaphy had been done altogether too much, regardless of after-results. In many cases there was no doubt that the canal had been closed to such an extent that drainage was not free. Such a condition had followed one operation of his own, and he had afterward been obliged to operate for pyosalpinx. The teaching had been that repair of all tears was necessary, and the consequence was that too many had rushed into the operation and much harm had been done. He did not think that laceration was a necessary result of labor. It had seemed to him that it showed the cervix to have been too small originally. To sew up such a cervix would be to retain an abnormal condition. Where hypertrophy and hyperplasia were present much improvement could be expected from the use of the curette and the application of pure carbohc acid.

Dr. PRYOR said that there ought not to be a place in gynæ-

cology for trachelorrhaphy. Much better permanent results could be accomplished by so many other means.

Fatal Nausea and Vomiting of Pregnancy.—Dr. EDWARD P. DAVIS, of Philadelphia, read a paper with this title. He described in detail three fatal cases of nausea and vomiting of pregnancy. The first patient had been treated for chronic gastritis previous to coming under the author's notice. She had had continuous vomiting and was very much emaciated. A tampon was put up to the cervix and every effort made to nourish by the rectum, but the patient died from exhaustion. Before her death purpural spots made their appearance. The size of the uterus compared with that of the second month of pregnancy.

In the second case there were prolapse and ante flexion of the uterus at the end of two weeks of pregnancy. There was intense vomiting, with nausea with considerable straining and retching. The diet was regulated, but the patient grew worse. At the end of the fourteenth week it was found that the body of the uterus was ante flexed and the fundus impacted behind the pubes; this was corrected, but the condition did not improve. The os was then dilated, with slight improvement. It was decided to hasten delivery, and this was accomplished without much trouble and with very little hæmorrhage. Subsequently the patient attempted to rise and died from syncope. The autopsy showed considerable fibrous tissue in the cervix posteriorly and anteriorly. The uterus, tubes, and ovaries were normal. The blood remained fluid and stained peculiarly. Two retention cysts were found. The points of interest in this case were the dense tissue found in the cervix, the retention cysts, the tenderness of the tissues, the hæmatin staining, and the signs of fatty degeneration.

In the third case the patient had suffered with severe sub-sternal pain, nausea, and vomiting of coffee-ground-looking material. The uterus was not impacted, but sharply ante flexed. Everything possible was done, but the patient died from exhaustion.

In a summary of the symptoms of this very fatal condition Dr. Davis laid special stress upon that of the coffee-ground vomiting and the sub-sternal pain. The nausea and vomiting of pregnancy were dangerous by reason of their being apt to cause pernicious anæmia. A case showing signs of obstinacy in yielding to treatment should be treated promptly by modern surgical methods.

Dr. REYNOLDS had found in such cases that there were usually structural alterations, and it was his practice to induce abortion at once. If the vomiting was too persistent there would surely come a time when anæmia would supervene, and it was best not to wait for that time. When the absorbent system had lost its power of supplying the general system it was too late to hope to save the patient, even if abortion was performed. Where time had been lost in palliative measures abortion only hastened the fatal end. Great judgment must be exercised where the expectant plan was adopted.

Dr. W. GIL WYLIE, of New York, said that in his hands steel dilators had given great relief in such conditions as those described by Dr. Davis. He treated the trouble by relieving the congestion and dilating, for he usually found a pathological condition present which was ample to account for reflex symptoms. In most cases where there was failure from this treatment it was due to the dilatation not being carried up high enough; it should be carried up to the os internum.

Dr. M. D. MANN, of Buffalo, thought that the difficulty of determining the cause in these cases was great. He described the history of a case in which a woman who had been married but seven weeks had spent six of them vomiting. She was in such bad condition that delivery was obligatory. Subsequent ex-

amination revealed a fibroid which seemed to have been the starting point of the trouble. Where patients were found in a bad way from persistent vomiting they should be delivered at once.

Dr. JEWETT had seen many cases, but had been unable to find any pathological condition to account for the symptoms. There might, however, be histological changes. Great benefit could be derived from dilatation, for it was both sure and safe. Patients should not be allowed to go on too long before radical measures were adopted.

Dr. A. PALMER DUDLEY, of New York, said that it had been his misfortune to have five cases of extremely obstinate vomiting. There was no doubt that the condition was a neurosis, but it was in the state of the generative organs that the cause must be looked for. It was his practice to pack the vagina and treat whatever diseased conditions were found. Painting the cervix with cocaine had been beneficial, also its administration internally. Good results had been obtained by the internal administration of monobrominated camphor.

Dr. DAVIS again wanted to impress upon the meeting the fact that if nausea and vomiting came on in a pregnant woman with substernal pain and the ejection of coffee-ground fluid from the stomach, the symptoms were dangerous and called for surgical interference.

Retroperitoneal and Intraligamentous Myomatous Tumors of the Uterus and Annexa.—Dr. WILLIAM H. WATHEN, of Louisville, read a paper on this subject. He said that, while paroophoron cysts and retroperitoneal myomata of the uterus and its muscular processes had nothing in common in their ætiology, he would include both kinds of tumor, because the technique of the operation for their successful removal was practically identical. After reporting five illustrative cases he said that no one should attempt the removal of intraligamentous or retroperitoneal tumors who was not familiar with the normal relations of every pelvic and abdominal organ, and the relations that these tumors might sustain to surrounding tissues; otherwise he would be at sea, and the immediate and subsequent results of his work would be bad. He should know that these tumors were mainly supplied with blood from the ovarian and uterine arteries, and that their successful enucleation depended largely upon a correct ligation of these vessels. The dangers of the operation, which should be anticipated, were: 1. Hæmorrhage from separated adhesions, from the capsule of the tumor, from the denuded surface of a myoma, from injury to the spermatic and uterine arteries, the iliac arteries and veins, and the inferior vena cava. 2. Wounding the ureters, the bladder, or the intestines. The causes of death were hæmorrhage, shock, and sepsis. The results of the operation depended mainly upon controlling hæmorrhage and upon successful enucleation. The forceps should be so shaped as to be readily applied to any part of the separated capsule, and the surface of the blades should be comparatively smooth and the edges so rounded as not to cause hæmorrhage by cutting through the thin and fragile walls of the vessels. The lack of proper instruments for controlling hæmorrhage had been the cause in many instances of considerable anxiety, but the author believed that in the two forceps which he exhibited to the society this danger was overcome.

If hysterectomy was necessary, total extirpation was preferable, for we could not get sero-serous union over the uterine stump, and unless this could be done the cervix ought to be removed. If possible, it was best to ligate the uterine arteries to the outer side of the ureters, before they gave off branches that supplied the upper part of the vagina and the cervix; otherwise they should be tied close to the cervix to prevent injury to the ureters. The patient should be in the Trendelenburg posture, so that the different structures and their relations might be

seen as the operation was proceeded with. He said there was no fixed opinion or uniform practice as to the treatment of the sac cavity. It was drained through the vagina or through the abdominal wall, with or without suturing the capsule to the abdominal wall, or it was not drained at all. If hæmostasis had been nearly perfect and the operation aseptic, drainage was not necessary, and then in total extirpation the vaginal vault should be closed by interrupted sutures.

Myomectomy as a Substitute for Hysterectomy.—Dr. E. C. DUDLEY, of Chicago, read a paper on this subject. After giving the history of the various operations for removal of growths in and around the uterus, and discussing the relative value of the various methods, he said that his objection to the operation of hysterectomy was that it removed from the woman her generative organs. It was for this reason that an operation which had for its object the removal of myomata from the uterus with the preservation of that organ had been devised by him. He described his operation in detail, giving the histories of twenty-five operations for various degrees and sizes of tumors, with not one fatal result. In some of the cases he had been obliged to remove the annexa for disease. He did not see, however, how, if the appendages were so diseased that their removal was necessary, there was much use in retaining the uterus. There were many cases where the uterus was the seat of a myomatous growth and the tubes and ovaries were in a healthy condition.

The Proper Position of Recent Surgical Methods in the Treatment of Uterine Fibroids.—This was the title of the president's address. He gave a historical review of surgical procedures for uterine fibroids, and said that, drawing his conclusions from statistics and from personal observation, he was not in favor of indiscriminate removal of the uterus, or even of myomectomy, until every other measure had been given a lengthened trial. Those present had all seen myomata that had remained stationary for years or had disappeared spontaneously after pregnancy or after curetting. If they were small, the Apostoli method seemed to offer the best results. Palliative measures were often followed by great improvement where, if radical treatment had been adopted, much unnecessary suffering and harm would have been done. Myomatous structures thrived upon excessively nourished tissues, and it was to the correction of such tendencies that our attention should be directed. It was our duty, as far as possible, to protect the woman from the loss of her reproductive organs, a condition which would make a sensitive creature feel an inferiority. He was in favor of the old method of dilating the cervix and drawing down the tumor through that opening. Abdominal hysterectomy should only be done where there were many adhesions present or multiple tumors or other complications, but where the tumor was single, efforts should be made to remove it through the cervix. Drawing from statistics again, it was his opinion that vaginal hysterectomy should have the preference over abdominal hysterectomy. Some of the disadvantages of the suprapubic method were the disfigurement of the cicatrix, the liability to hernia, adhesions of the omentum, the dangers of the exposure of the intestines to the air, and shock. If the tumor exceeded the size of a child's head, then it had perhaps better be removed from above. Where oophorectomy alone was performed for the relief of certain symptoms it was sometimes successful, but oftener the patients returned suffering as much as they had originally. Where the disease was of considerable extent, the complete or partial removal of all the organs involved would be the wiser plan. All pedunculated growths should be tied off and removed. Large cysts and multiple tumors and cysts could be operated upon from above, and hysterectomy could be done if found necessary. The proper

treatment of the stump was still not a settled matter; the retroperitoneal treatment seemed, however, to be the method of election.

(To be continued.)

Reports on the Progress of Medicine.

GENERAL SURGERY.

By M. L. FOSTER, M.D.,

ASSISTANT SURGEON TO THE MANHATTAN EYE AND EAR HOSPITAL.

Surgical Treatment of Pulmonary Cavities.—Dandridge (*Annals of Surgery*, February, 1894) deduces the following conclusions from his study of this subject:

1. A certain number of lung cavities can be successfully dealt with by incision and drainage.

2. Tubercular cavities in the lower portion of the lungs—if single and superficial, and the general condition of the patient permits—should always be opened. Cavities at the apex should only be opened where free and persistent foetid expectoration is present and has resisted treatment, and the rest of the lung is not involved.

3. Abscess, gangrene, and hydatid cyst should be opened and drained whenever they can be located.

4. Closure of the pleura should be present before evacuation of a cavity is attempted.

5. In cases of pyopneumothorax the fistulous tract should be explored, and any cavity freely laid open by the cautery.

6. Cavities that have been opened are best treated by packing with gauze, preferably iodoform.

7. The further careful trial of such agents as iodoform, chlorine gas, and chloride of zinc is desirable to determine as to whether the tubercular infiltration may not be modified by them.

8. It is very desirable for the further extension of surgical interference in pulmonary cavities that the means of locating such cavities, and of determining their size and the exact character of the tissue that overlies them, should be perfected by further study, and for the accomplishment of this the surgeon must look to the physician.

Entero-anastomosis for Malignant Stenosis of the Digestive Tract.—F. H. Markoe (*ibid.*) makes the following remarks about this operation, which is resorted to only as a palliative to relieve unnecessary suffering caused by an incurable disease and so to prolong life:

"As a result of experience we endeavor to operate as early in the disease as possible, or, if debility is already present, postpone interference until, by means of systematic lavage with careful gastric, supplemented by rectal, nourishment, the general condition improves.

"We have also learned—(1) that the size of the anastomotic opening must be large on account of the tendency to contraction; (2) that in case of the stomach it should be as near as possible to the greater curvature and nearer the fundus than the pylorus, so as to be not only as far distant as possible from the disease, but, at the same time, in the most favorable situation for the passage of the contents of the stomach into the intestine; (3) that the jejunum, about thirty inches from the pylorus, is the proper portion of the intestine to approximate, and that its opening should be placed midway between mesenteric attachment and extreme convexity; (4) that in the approximation the loop must be so arranged that its peristaltic wave corresponds with that of the stomach; (5) that the tide of opinion seems to favor a union which shall represent, as far as

possible, that of the different anatomical layers, rather than through the medium of artificial aids; (6) that, as in all intra-abdominal operations, our manipulations must be so performed as to favor to the slightest degree ultimate adhesions between adjacent structures."

Excision of the Gasserian Ganglion.—Eskridge and Baker report (*Am. Jour. of the Med. Sci.*, March, 1894) a case of neuralgia of the right cranial nerve of sixteen years' duration in which the three divisions of the Gasserian ganglion were removed with a fatal result. The operation employed was Rose's, as follows: An incision is made through the skin from above the zygomatic arch near the eye backward nearly to the ear, then downward in front of the ear and along the posterior edge of the lower maxilla to near where the facial artery crosses it. The flap thus marked out is dissected forward and stitched to the skin near the mouth. The zygoma is then exposed and drilled, two holes near the front and two near the back part of the arch; the arch is then sawed between each of these pairs of holes, and with the masseter muscle is turned downward. The coronoid process of the lower maxilla is then exposed and divided and the temporal muscle turned upward. The internal maxillary artery is then sought for and the external pterygoid muscle is removed from the great wing of the sphenoid so as to expose the foramen ovale. A button of bone is then removed with a trephine anterior and external to the foramen, and the ganglion is searched. The opening in the bone can be enlarged with rongeur forceps if necessary. Rose recommends to reach the ganglion from behind, if possible.

Dr. Baker says the operation has been performed only twelve times—six times in England and six times in this country—with only one fatal case in England and one here.

Gastrostomy.—Caird (*Edinburgh Med. Jour.*, February, 1894) considers the operation introduced by Witzel, of Bonn, to be the most satisfactory plan for performing gastrostomy, and gives the following description:

The patient is anesthetized and the customary antiseptic precautions are observed. The usual incision is made, the rectus split along the course of its fibers, its sheath and the peritonæum opened. The stomach is then sought for, seized by the fingers, and a portion of the anterior aspect, as large as the palm of the hand, is pulled out of the wound and packed around with sterilized gauze, moist and warm. A spot is then selected near the lesser curvature, free from vessels, and a small incision about a quarter of an inch long is made into the stomach. The surgeon has in readiness about two feet of red rubber tubing, in diameter equal to that of a drawing pencil, and slips about an inch of it into the stomach through the incision which it accurately plugs. Should there be any excessive bleeding, it may be arrested by catgut suture which serves to fix the tube provisionally. Care must be taken to wipe away any fluid that may escape from the stomach. The tube now hangs across the stomach toward the greater curvature and has to be secured in position so as to form a sort of artificial œsophagus. This is done by raising a fold of stomach on each side of the tube with a series of interrupted silk Lembert sutures which, when tightened, bury the tube for about two inches of its length in the folds. Two or three similar sutures beyond the sunk extremity of the tube shut off the new œsophagus from the peritoneal cavity at the further end. A little sterilized iodoform powder is rubbed over the stitches and a second similar series of sutures are put in over the first to promote the efficient union of the serous surfaces over the tube. The stomach is now returned and secured to the abdominal wall. Before returning it a few loose sutures may be passed through the folds and outer portion of the stomach wall at the free extremity of the tube. These are employed in fixing the stomach to the abdominal wound, which may then

be closed. A funnel is attached to the tube through which food may be immediately introduced.

The tortuosity of the new channel and the valve-like action brought about by the contraction of the stomach preclude any regurgitation of the food. The tube should be removed about once a month. To avoid difficulty, it is well to cut off the free surplus of the old tube and pass a long-eyed probe into the stomach through the portion that remains, which may now be removed. The new tube should be strung on a silk thread, the end of which is now to be attached to the probe and the new tube slid over the probe into the stomach. By pulling on the silk the probe is then removed.

It is noteworthy that when the œsophagus regains its functions, as in cases of cicatricial stricture, on withdrawal of the tube there is never any outflow of fluid, and the fistula rapidly heals.

The Fate of Thiersch Skin Grafts.—Goldmann (*Beiträge zur klinischen Chirurgie*; *Edin. Med. Jour.*, February, 1894) says that when a wound has been successfully grafted after the manner of Thiersch, healing occurs without the formation of granulations, and with scarcely any cicatricial contraction. After a few months the new skin is reddish and somewhat glistening, it is on the same level as the surrounding skin, it is more or less movable on its bed, and it frequently possesses both tactile and thermal sensibility. When the changes in the grafts are examined in detail, it is found that in the first instance there is some desquamation of the horny layer, while at the same time there is active proliferation in the middle layers of the epidermis; ultimately the epithelium as a whole is thin, and the papillæ are of small size. An entirely new vascular network is formed beneath the epidermis, which nourishes the latter, and persists for years, which accounts for the redder tinge of the new epidermis and differentiates it from the surrounding skin. The grafted skin reaches the level of the surrounding skin surface more rapidly when the grafts are placed on a vascular bed; in the forehead this level has been attained in four to six weeks. It fails to attain this level when the grafts are placed on a granulating surface, as in the latter case there will be cicatricial tissue beneath the new skin. After an interval of months the mobility of the grafted skin is so developed that it can be lifted up in folds from the tissues beneath. Return of sensibility occurs sooner at the margins than at the center of the grafted area, and where large gaps have been filled up it may not return at all.

In discussing the anatomical basis of these clinical facts, the writer points out that the normal mobility of the skin on the subjacent tissues depends on the network of elastic fibers which connect the former with the latter. By adopting a special stain for the elastic fibers, he was able to prove that these were abundantly formed in the true skin beneath the grafts, and that they were prolonged right up to and into the papillæ, so as to end immediately beneath the epidermis. The presence of these new elastic fibers, derived from the mother tissue, gives the grafted skin greater resisting power, so that it is able to withstand traction and pressure. Inasmuch as granulating and cicatricial processes hinder or prevent this growth of elastic fibers into the graft, we are able to understand why the results obtained are so much better when the grafts are placed on a recent wound than on one which is granulating. It is also to be noted that the development of the elastic network explains the absence of cicatricial shrinking of the transplanted skin. The new vessels which are formed from the mother tissue have a great influence in raising the grafted area to the level of the surrounding skin. In this they are assisted by the formation of elastic fibers and of young connective tissue. In a successful case there is no scar tissue to be seen. The return of sensibility to touch, pain, and temperature is explained by the forma-

tion of new medullated nerve fibers, which are probably also derived from the mother tissue, and which the author has traced into the grafted skin. This method of grafting succeeds at all ages to an equal degree.

Ventral Hernia after Abdominal Section.—McArdle (*Dublin Jour. of Med. Sci.*, February, 1894) considers the usual cause of the occurrence of hernia after laparotomies is faulty union of the middle stratum of the abdominal wall. The causes of this faulty union he places thus in order of importance:

1. Failure to engage the different layers of this stratum sufficiently in the sutures.
2. Interposition of contused peritonæum.
3. Hæmatoma not becoming soundly organized.
4. Suppuration from inherent or extrinsic causes.

The remedy for this, which he suggests, is to suture the abdomen in all laparotomies as we do for hernias, to obliterate all cavities in which blood or serum could collect, and to avoid contusing the peritonæum by using catch forceps with sharp points to hold it by.

The steps of the operation for ventral hernia as he conducts it are: Incision of skin of one side; isolation of the neck of the sac along this side, then undermining not only the skin, but all of the tissues on the other side of the neck, making it possible to cut cleanly through everything down to the neck of the sac with strong scissors with long handles. This done, the sac opened, and no omentum or bowel remaining in it, a Hagedorn's needle is carried round in the subperitoneal tissue, like a purse string. This being drawn and tied, numerous sutures carried with the same needle through the aponeurosis close the wound over the mouth of the purse after cutting away the sac a quarter of an inch or so above the ligature. Skin sutures passing deeply, and taking up the floor of the wound, are now applied and knotted.

Apparatus for the Treatment of Fractures of the Patella.—Wheeler (*ibid.*, March, 1894) describes the following: The apparatus is a hollow wooden splint extending from above the middle of the thigh to the sole of the foot, at which point a footboard is attached by means of a hinge. This splint, having two transverse bars, is fitted into a long box splint, in the sides of which it travels horizontally. That portion of the splint where the limb rests can be elevated or depressed as required by means of perpendicular slots cut through the sides of the box splint. Thus the splint can be adjusted to suit a long or a short limb, which can be elevated or lowered at pleasure, and the foot can be placed at any angle. The hollow splint is fixed in position by means of thumb screws, which fit into the transverse bars before mentioned. Two semilunar pieces of metal softly padded are fixed, one above, the other below, the fractured patella by means of leather straps which pass round the limb. The leg is secured to the splint by two broad web straps, one round the calf, the other at the ankle. The foot is bandaged to the footboard. A roller with rack adjustment is fitted in the box splint below the footboard. From this roller start four cords fitted through brass sheaves. The cords are attached, two to the upper and two to the lower metal pads by means of chains and light hooks. The roller is turned with a key, and, acting upon the cords, causes the metal pads simultaneously to approach each other, thereby bringing the fragments into apposition. The rack is covered by a brass box which can be locked so that the adjustment of the splint can not be interfered with by the patient.

In adjusting this apparatus both time and patience are required in the first application, and if the pads are once properly adjusted they need not be altered until union is obtained. The fragments should be heard or felt to grate together and the soft

tissues should be drawn well upward and downward before the pads are applied.

Blastoma.—This title has been given by Dr. Snow (*Birmingham Med. Review*, December, 1893) to certain obscure and strangely constituted tumors which refuse to fall into any of the recognized groups, but agree in being the offspring of foetal structures obsolete in extra-uterine life. The development appears wholly spontaneous, as the natural outcome of some inherent force or law of development, while the non-congenital cancers of the adult are never found without the previous operation of one or other of certain recognizable antecedents. These rare formations exemplify a general tendency pervading all the organs derived from the Wolffian bodies, Müllerian ducts, and germinal epithelium, the kidneys, uterine appendages, testes with their gubernacula, vesiculæ seminales, epididymides, prostate, vasa deferentia, and cortical part of the adrenals. Less conspicuous are the organ of Giralès, the vas aberrans of Haller, the hydatids of Morgagni, and the paroophoron. The rhabdomyoma of the infantile kidney is a most malignant blastoma. Huge masses containing striped muscle blended with ordinary sarcoma tissue grow rapidly and prove fatal with metastases in lungs, liver, heart, peritonæum, etc. The fact that these are commoner in the male sex is explained by the further devolution of the Wolffian body and its correlatives in males. Congenital dermoid tumors of the ovary are much commoner than is usually supposed—ten per cent. of ovarian cysts being wholly or partially dermoid, according to Greig Smith. The composition of these malignant dermoids is peculiarly complex and puzzling, inasmuch that the special term “oophoroma” has been coined for them. Cell elements with little organization or regular arrangement prevail in the oophoromata of foetuses or very young children; toward puberty a higher organization is found, the cells being grouped in alveoli and various formed tissues being present; later on are large cysts with the usual heterogeneous contents. The thymus, parotid, and soft palate are not unusual sites for these growths. The polymorphism of malignant tumors springing from the thymus is explained by their development in two portions, one being composed of small lymphoid cells, the other of glandular epithelium. In the parotid, groups of embryonic cells pertaining to one or other of the branchial arches persist and prove the nidus of future tumor formation; relics of Meckel's cartilage account for the presence of that tissue. Bone, striped muscle, gland acini, embryonic connective tissue, and myoma tissue may also occur. The soft palate is prone to involve similar residua; hence dermoids, angeiomata, encapsulated masses of epithelium, and epithelial pearls. These often pass as “round-celled sarcoma,” an ambiguous term including a variety of neoplasms, or as “cysts,” or more commonly as “adenomata.” An important section of embryonic inclusion cancers is constituted by the retinal gliomata of young children.

Of persistent foetal rudiments which more rarely prove the seat of tumor formation may be cited the pituitary body, pineal gland, and the remains of the six obsolete embryonic canals—viz., infundibulum, neurenteric passage, post-anal gut, cranio-pharyngeal canal, thyreo-lingual duct, and vitello-intestinal duct. These are practically sequestered portions of bowel, and hence the resultant tumors commonly reproduce the structural characteristics of the intestine blended with other abnormal ingredients.

In all probability minute sequestered portions of foetal “blast” may persist throughout life without causing the least trouble. In some cases a certain amount of growth takes place with formation of a benign tumor. In a third class, after years perhaps of quiescence, a new growth is developed with the ordinary characteristics of cancer.

The characteristics by which blastomata may be recognized and differentiated are thus summed up:

(a) Demonstrable origin from organs or structures which persist as foetal remains throughout extra-uterine life—*e. g.*, the thymus, pineal, and pituitary bodies.

(b) Origin from vestigial structures, which normally undergo obliteration to a greater degree than the preceding, yet always leave inconspicuous traces. Of such are the paroovarium, Giralès's organ, etc.

(c) Origin from vestiges which but rarely persist—*e. g.*, dermoids, the “coccygeal tumor,” with other derivatives of the six foetal canals, the umbilical “cylindromata” developed from a patent urachus.

(d) Anomalous tumors, which appear at the site of the branchial arches, or other localities affected by the ordinary dermoid, and betray an embryonic origin by the possession of normal tissues in an abnormal situation. The familiar mixed tumors of the parotid are the best instance, and similar ones are less often seen in the testis, mamma, rectum, etc.

(e) Those malignant lesions of early child life, which not seldom have commenced *in utero* and are bilateral—*e. g.*, rhabdomyoma, retinal glioma, oophoroma. No form of cancer simultaneously attacks in the adult corresponding organs on opposite sides.

(f) Certain obscure growths, especially about nerve centers, probably own a congenital source and may be provisionally included in the group. Among these count the “plexiform sarcoma” of Billroth, with some, at least, of the tumors currently described as endothelioma, psammoma, columnar epithelioma, many cysts, sarcomata, angeio-sarcomata, etc.

(g) The great majority of malignant tumors in young children, if not indeed all, must be referred to the class blastoma. The kidneys, bladder, ovary, and genito-urinary tract in general furnish the most familiar illustration. Sometimes the organ attacked is, in the adult, specially exempt from cancer—*e. g.*, the adrenals, prostate, and vesiculæ seminales.

The morbid anatomy varies widely. The most distinctive mark is a curious and perplexing *mélange* of dissimilar tissues—*e. g.*, of carcinoma structure with that of sarcoma, of tubules or cysts lined with cubical epithelium, with areas of heterogeneous cell-infiltration, of glandular acini or follicles, with connective-tissue structures, cartilage, fat, bone, sarcoma, and gland tissue with muscle. Usually there is a tendency to cyst formation.

He considers that the theory of autositic cell reversion derives considerable support from the career of this very anomalous group of neoplasms.

Resection of the Inferior Maxillary Nerve.—Quénu (*Gaz. des hôpitaux*, 1894, No. 5) describes a rather complicated method of performing this operation. It is a combination of Krause's and Rose's operations, and is claimed to unite the advantages of both.

The temporal fossa is exposed by a curved incision with its convexity upward, the zygoma is sawn through and a flap formed of integument, and the temporal muscle is turned down. The temporal bone is then trephined, and the opening enlarged with a rongeur. The opening should be large enough to permit the finger, introduced to push aside the dura mater and protect it from the forceps, to reach as far as the foramen ovale. A short director should be introduced, under the guidance of the finger, into the foramen ovale to serve as a guide for the rongeur. Upon this the great wing of the sphenoid is cut away as far as the foramen ovale, so as to lay bare the trunk of the trigeminal nerve. Now it only remains to shove the pterygoid muscles aside and a portion of the trunk of the nerve can be removed. One can also without trouble follow the trunk of the nerve to the Gasserian ganglion, if he prefers to resect this.

Transplantation of Skin.—Schnitzler and Ewald (*Ctrbl. f. Chir.*, 1894, No. 7) maintain that it is unnecessary to remove the granulations from a granulating surface before transferring a skin graft to the surface. On the contrary, after curetting such a surface and applying the grafts, granulations must again form before the graft will become attached, and, if the graft be placed upon the granulations themselves, a good result can be expected not less surely than if the method recommended by Thiersch be followed. The want of asepsis is marked, as the granulations can not be disinfected without injury and hæmorrhage; but the result shows that careful asepsis does not play the important rôle here that one would suppose.

Another advantage of this operation is that it can be performed under local anæsthesia of the part whence the graft is taken. The writers prefer the local anæsthesia produced by freezing with ethyl chloride to that by subcutaneous injection of cocaine. The skin is quite hard and easily cut, there is no swelling or stretching, and the grafts remain smooth and thaw either on the knife or on the surface of the wound itself. No injury from the freezing has been noticed.

Hydrocele.—Neumann reports (*Fortschritte der Medizin; Ctrbl. f. Chir.*, 1894, No. 5) that he has treated six cases of hydrocele in the following manner with good result: Evacuation with trocar and cannula. After the fluid had escaped, the cannula was passed somewhat upward and retained in position by a compress for two days. In all the cases agglutination of the walls of the sac resulted in from seven to nine days.

Wound Drainage and Pressure Bandage.—Kronacher (*Wiener med. Presse*, 1894, No. 2) recommends the combination of drainage with pressure first advocated by Marc Sée. An India-rubber drainage-tube introduced at the lowest part of the wound is provided with a strong silk thread near its upper end, which is brought out beneath the dressing applied over the wound. The ends of the thread are fixed in place with collodion, and a small bandage placed over all. After two to four days the small bandage is removed and the tube drawn out from the wound beneath the pressure bandage by means of the silk thread. A few turns of bandage are then placed again over the dressing.

Miscellany.

Biniodide of Mercury as an Antiseptic.—The *Hospital* for July 7th publishes an article on this subject by Mr. A. Hanbury Frere, who remarks that among the many advances in the art of surgery in recent years the management of wounds finds a prominent place, and that one improvement in this direction is the simplicity of method. When it was acknowledged that something more than soap and the scrubbing brush was required, there arose an army of germicides, each of which has in turn given way to some other antiseptic, until now there seems to be a tendency to return to carbolic acid.

Perhaps the antiseptic most exclusively employed is corrosive sublimate. Great as the value of corrosive sublimate is, says the author, there are very serious drawbacks attending its employment. According to Lister, it can not penetrate anything greasy; therefore elaborate preparations are necessary in order to cleanse the skin before the bichloride can be used. It is also dangerous as an intra-uterine injection, as it is extremely apt to give rise to poisonous symptoms. The author, therefore, desires to draw attention to a reliable antiseptic which is entirely free from the disadvantages attached to corrosive subli-

mate. This antiseptic, he says, has not received the attention it deserves, and many fail to appreciate its true worth, notwithstanding the fact that it is the most powerful germicide known at the present time. Biniodide of mercury dissolved in a solution of sodium iodide does not produce the unfavorable conditions that follow the use of the bichloride. Yet this fact is not generally known, for at a recent discussion, reported in the *British Medical Journal* for November 25, 1893, the opinion was expressed that the biniodide of mercury entailed the possible risk of iodism in addition to that of mercurialism. In the case of biniodide of mercury dissolved in a solution of sodium iodide, such a thing is impossible, as each is soluble in excess of the other. Thus the soluble biniodide of mercury does not, like the bichloride, form an insoluble albuminate, while the biniodide, unlike the bichloride, is very rapidly eliminated, and is not likely to give rise either to iodism or to mercurialism. Mr. Frere's chief reasons for calling attention to the biniodide of mercury dissolved in a solution of sodium iodide as a lotion for wounds are as follows: 1. It is easily prepared by the addition of a solution of potassium or sodium iodide to the liquor hydrargyri perchloridi of the British Pharmacopœia until the precipitate which first forms is dissolved. This gives a solution (1 in 1,000) of biniodide of mercury in a solution of potassium or sodium iodide. 2. In all kinds of wounds the results are superior to any obtained with other antiseptics. 3. Its value is especially seen in scalp wounds, in which, under its influence, no suppuration had been observed. 4. It saves a great deal of time, trouble, expense, and anxiety to the general practitioner. After the wound is washed with the solution (1 in 1,000) it is sufficient to keep lint constantly moist with a solution, of the strength of 1 in 2,000, applied to the part.

A Method of Sterilizing Catgut.—At a recent meeting of the *Académie de médecine*, a report of which is published in the *Union médicale* for June 7th, the following method of sterilizing catgut was presented by Dr. Répin: The catgut must be perfectly clean and free from grease, which must be extracted by using ether or carbon sulphide brought to the boiling point in an extraction apparatus. From this is obtained a white inodorous product which rapidly swells in water, and is very flexible without being slippery. This product must be completely dried, as the slightest trace of water will cause its disorganization when the temperature exceeds 212° F. It is put into a sulphuric-acid desiccator, or it is subjected to a hot-air bath the temperature of which is brought slowly to 230°, at which it is maintained for an hour. The catgut is then placed in steel tubes filled with pure alcohol, and is kept in a digester at a temperature of 248° for an hour. The quality of the alcohol is not a matter of indifference. Watery alcohol, even if it does not contain more than one per cent. of water, exercises a destructive action all the more pronounced and rapid when the temperature is more elevated.

Catgut subjected to this process, says M. Répin, is not changed in any respect, either in its appearance or in its qualities; its resistance, measured before and after the sterilization, is not diminished and its elasticity is the same.

The author's experiments have convinced him that, at a temperature of 248° in pure alcohol, the most stubborn germs are completely sterilized. He has experimented with catgut taken from an animal affected with anthrax and submitted it to this process of sterilization, after which it was inoculated on three guinea-pigs and not one of the animals presented signs of infection. This demonstrates, he says, that the sterilization of catgut by alcohol vapor under pressure, and at a temperature of 248°, is a method which can absolutely be counted upon.

Acute Poisoning with Medicinal Doses of Creosote.—In the *Gazette hebdomadaire de médecine et de chirurgie* for July 7th there is an abstract of an article by Zowadzki, published in the *Centralblatt für innere Medizin*. A woman, forty-two years old, being attacked with bronchitis, consulted a physician, who ordered creosote to the extent of eighteen drops in twenty-four hours, to be taken in six-drop doses. The patient followed the instructions and took six drops in milk three times. In a short time she was taken with difficulty of swallowing, vomiting, and diarrhœa, and, as her general condition was growing worse, she entered the hospital. On examination, the first thing that attracted attention was the very pronounced odor from the patient's mouth. On the inner surface of the lips, on the velum palati, and on the posterior wall of the pharynx were to be seen white patches like those produced by a caustic, and surrounded with an inflammatory areola. The difficulty of swallowing was extreme, so that the patient could not even swallow liquids. Moreover, there was complete paralysis of the velum palati, which, together with the base of the tongue and the posterior wall of the pharynx, was at the same time anæsthetic and analgetic. There was no affection of the heart or of any of the other organs. Auscultation of the lungs, very difficult on account of the patient's feebleness, disclosed fine râles at the base of the right lung. There was no creosote in the urine, but it contained two parts of albumin in a thousand, also hyaline casts. The temperature was 100.3° F., the pulse 87. For the next few days the local symptoms remained the same, but the collapse, already very pronounced at the time of the patient's entrance, grew more marked, and death took place in four days. At the autopsy an ulceration having the characters of a burn was found in the upper third of the œsophagus and another on the edge of the pylorus. The mucous membrane of the stomach and duodenum was injected, red, and covered with ecchymoses. There was acute parenchymatous nephritis, also cloudy degeneration of the hepatic parenchyma. There was vegetative endocarditis manifested on the mitral valve, with pneumonia of the right middle lobe and hyperæmia of the brain and its membranes. The author thinks that these symptoms and post-mortem findings indicated poisoning with creosote of a character identical with that described in the treatises on toxicology. It was evidently a case of idiosyncrasy, for an examination of the bottle used by the patient showed that the creosote had been pure and that the patient had not taken more than eighteen drops. With regard to the burns found at the upper part of the digestive tube, they are to be explained by the fact that the patient had taken the creosote in milk, which, as is well known, is not a solvent of creosote.

The Bite of a Venomous Spider.—In the June number of the *Australasian Medical Gazette* L. Davenport Parry, of Murrumburrah, New South Wales, publishes notes of three cases of spider-bite. The cases happened, he says, in the years 1885, 1889, and 1894, all of them in the month of March, and in all instances males were bitten on the penis while sitting on the usual Australian outdoor closet. Except that in the first case there was much local swelling, whereas in the other two the bitten organ was little or not at all swollen, the cases were alike, and a history of one will suffice for all; therefore he gives a brief account of his third case:

H. E. sent for him on the morning of March 14th, and on his arrival stated that he had been bitten or stung by some insect while sitting on the closet at 9 P. M. the previous evening. He said that the sensation at the time had been more like that of a burn than that of a sting, and the bitten part (the glans penis) had shortly become very red and inflamed. For a time the pain had been merely local, but very severe. It had then extended

to the root of the penis, and thence along the groins on either side to the back. At about 11 P. M.—i. e., two hours after being bitten—he had felt a pain like “pins and needles” in his toes. This had increased in intensity and spread to his feet, to his ankles, and finally as high as his knees. At the same time the pain in his body had extended up the back and round the lower part of his chest, being like “a belt of prickling and tingling.” The pain had increased in severity, and been accompanied by great restlessness, so that he could not remain in any one position for many minutes; and in the early morning he had been unable to endure it longer. When the author arrived (at 5 A. M.) he complained chiefly of the pain in his feet and legs, especially his toes; and these parts were bathed in a cold perspiration. His temperature was slightly subnormal and his heart's action was somewhat weak. The author administered a hypnotic to allay excessive irritability, and prescribed a mixture containing ammonium carbonate and digitalis. The pain continued with intermissions, probably caused by hypnotics, for forty-eight hours, and the perspiration, which had at first been confined to the lower extremities, gradually became general, and was very profuse, so as to soak through even the blankets of the bed. He went back to his office on the fifth day, though still feeling languid and tired; but for ten days after returning to business he complained of occasional darting pains in the legs and round the lower part of the chest. The profuse perspiration mentioned gave off a peculiar cadaverous odor, noticeable by the patient himself and his attendants. This was treated by frequent tepid sponging. The closet in this case, as well as in the two previous ones, was examined, and beneath the seat were found from twenty to thirty very small spiders and one or two large ones, of a dark color with a brilliant red spot, or rather streak, on the back—in fact, one of the *Lathrodectus* family.

Referring to the fact that the president of the Royal Society had stated in an address that spiders were probably not *always* venomous, and that this point required further elucidation, Mr. Parry says he thinks this is certainly the case, or these accidents would be more frequent. Also he points out that all his cases occurred in March, and that in all of them the spiders were accompanied by young ones. May it not be, he asks, that they are venomous only in the breeding season or when protecting their young? The poison, too, he adds, is essentially different from many other animal poisons, in that there is no tendency to produce coma or somnolence, but rather insomnia, pain, and restlessness—in short, the symptoms of an acute peripheral neuritis without the sequent anæsthesia or paralysis.

The American Academy of Medicine.—The nineteenth annual meeting will be held in Jefferson, N. H., on Wednesday and Thursday, August 29th and 30th. The greater part of the time is to be devoted to the discussion of certain problems relating to “the medico-social relations of the medical profession to the ‘dependent classes.’” The following papers may be expected: The Retrogressives: What Produces Them; Classification, by Dr. Bayard Holmes, of Chicago; The Importance of the Study of the Subject to the Profession, by Dr. Charles McIntire, of Easton, Pa.; The Provident Dispensary in England, by Dr. H. Webster Jones, of London; Assistance and Care for the Blind, by Dr. Charles A. Oliver, of Philadelphia; The Prevention of Blindness, by Dr. Benjamin Lee, of Philadelphia; The Present Status of Legislation for the Prevention of Blindness from Infantile Ophthalmia, by Dr. Lucien Howe, of Buffalo; Senile Dementia and Testamentary Capacity, by Dr. J. N. Whittaker, of Cincinnati; What Agencies Conspire to Check Development in the Minds of Children? by Dr. J. Madison Taylor, of Philadelphia; The Medical Service of the United States

Pension Bureau, by Dr. P. S. Conner, of Cincinnati; Physical Training for Delinquents, by Dr. Helen C. Putnam, of Providence; Government Commission instead of State License, by Dr. J. D. Kelly, of New Haven; The Relation of Food Adulterations to the Dependent Classes, by Dr. Henry Leffmann, of Philadelphia; and an address by the president, Dr. George M. Gould, of Philadelphia. The preliminary notice announces also papers by Dr. J. A. Spalding, of Portland, Me.; Dr. Gershom H. Hill, of Independence, Iowa; and Dr. F. H. Gerrish, of Portland, Me.

Cavalryman's Osteoma.—At a meeting of the *Société de chirurgie* held on July 4th, a report of which appears in the *Journal des praticiens* for July 7th, M. Delorme reported several cases of osteoma of the thigh which had developed in horsemen at the insertion of the adductor femoris longus into the femur, and reviewed the various theories of the pathogeny of this affection. The notion of the bony transformation of a collection of blood, with or without muscular rupture, has lost its force, he says, for it is now known that osteoma occurs without any injury. The theory most generally accepted is that of a myositis ossificans following detachment of the periosteum. M. Sieur's experimental researches seem to have cleared up the question. Thus, by destroying the insertion of a tendon of the adductor by lifting a portion of the periosteum in the rabbit, there was produced the formation of an osteoma in the body of the muscle. There then took place a periosteal or apophyseal transplantation, the loosened part being often bound to the body of the bone by fibers of periosteum, and these were the point of departure of the osseous tissue. Such an arrangement does not seem to occur clinically. Indeed, in order to separate the tendons of the adductors of the periosteum from their femoral insertion in the dead subject, M. Delorme had to make use of traction to the extent of from one hundred and ten to one hundred and twenty kilogrammes—a degree of traction that never takes place clinically. Indisputable as the osseous genesis of osteoma is, its intimate mechanism is as yet unknown. As to its structure, this osteoma is formed of osseous tissue in process of development. The growth of the tumor is generally rapid; in from two to three months it attains the dimensions of a hen's egg. When it becomes painful and embarrassing it is necessary to remove it, but recourse need not be had to this radical procedure until energetic massage has been practiced, for in a few cases that suffices to reduce its volume.

An Epidemic of Hysterical Contractures in a Village School.—The *Revue internationale* for June 10th contains an abstract of an article by M. Hirt, of Berlin, published in the *Journal de médecine de Bruxelles*, in which he related the following instance: A little girl, seven years old, was seized one day, while in class, with an attack of trembling which began in the right hand and extended to all the muscles of the body. This lasted for half an hour and terminated abruptly with convulsive symptoms. The following day other little girls presented the same symptoms, and from that time they occurred every day, becoming more aggravated, and a month after their first appearance the number of children seized with these attacks was twenty, and at the end of the school year, thirty-eight. None of the boys had been affected. At the beginning of another term several little girls complained of violent headaches, and they were sent back to their homes. M. Hirt had examined several of these children and found that the attacks began with generalized trembling followed by muscular contraction; the respiration became accelerated, the mouth was frothy, and cramps, alternately tonic and clonic, set in; there were also hallucinations, and some of the children barked. Compression of the ovaries was resorted to, but it failed to con-

trol the attacks. It seemed to the writer a true epidemic of hystero-epilepsy which might be compared to the epidemic of contracture of the extremities described by M. Jules Simon.

Coryl and the "Coryleur."—M. Joubert, according to the *Revue d'orthopédie*, applies the name of coryl to a new local anæsthetic composed of ethyl chloride and methyl chloride in such proportions that the boiling point of the mixture shall be about 32° F. There is no fear, he says, of its producing eschars. The editor states that for several months he has experimented with coryl at his service in the Enfants-Assistés, and has found it very convenient for all the minor operations of surgery, such as puncturing and incising abscesses, subcutaneous tenotomy, etc. The name of "coryleur" is applied to the instrument which holds it. This consists of a nickel-plated tube which the surgeon holds in one hand while he directs one end, drawn out to a point, toward the part to be anæsthetized, so that the vapor of the liquid may issue upon it. The other hand operates a key by means of which the instrument is opened. In order to obtain sufficient anæsthesia, it is well to project a stream of the liquid on the skin first. As soon as the skin begins to grow white, it is to be dried with a pledget of cotton, and then a fresh jet of coryl projected upon it before performing the operation.

Misguided Tolerance of Counter-prescribing.—The *Medical Record's* London correspondent says: "Sir Benjamin Ward Richardson has 'put his foot in it' with the general practitioners. He has actually proposed in his *Asclepiad* (occasionally pronounced as if sleepy-head) to legalize counter-prescribing by druggists. If there is one abuse more injurious to the profession and dangerous to the public than all others, surely it is this widespread encroachment of men in a province for which they are unfitted. Bad as it is to endure the competition of unauthorized and unqualified quacks of every kind, what would the consequence be of legalizing the practice of the great shop-keeping quack? Convert every dispensary into an authorized prescriber, and the 'doctor's shop' would no longer be a phrase to laugh at. Ignorance would prescribe for all minor ailments a pennyworth of a drug or a shilling nostrum according to the willingness of the patient to disburse. This is certainly a solution of the problem of cheap dispensaries and out-patient abuse which no reformer has contemplated. I hope Sir Benjamin will have the courage to say he repents the rash proposal, which was no doubt dropped in a thoughtless moment—an error often committed by those who suffer from attacks of *cacoethes scribendi*. This is by no means the first blunder of Sir Benjamin's on medico-political matters, but he could hardly be betrayed into one more serious."

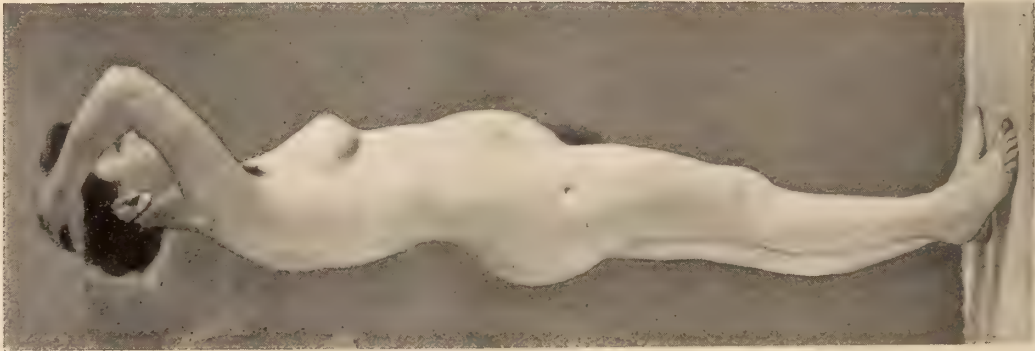
An Excrescence of the Carduus Hæmorrhoidalis as a Nerve.—In the *Centralblatt für innere Medizin* for June 16th there is a brief summary of an article on this subject by Dr. Goovaerts, published in the *Annales et bulletins de la Société de médecine d'Anvers* for November, 1893. It seems that the author's use of a preparation made from the excrescences of the *Carduus hæmorrhoidalis* has led him to regard it as an exceedingly efficient remedy for epilepsy, hysteria, chorea, and nervous atony of the stomach, even in obstinate cases. The excrescences are caused by the puncture of the thistle-fly (*Urophora cardui*). Unfortunately, the district in which the plant is found is so small that the product obtainable is very limited.

Iodized Collodion as a Depilatory.—The *Union médicale* publishes the following formula: Alcohol, forty-eight parts; iodine, three parts; collodion, a hundred and forty parts; oil of turpentine, six parts; castor oil, eight parts. This is to be applied to the hairy parts every day for three or four days.

DR. BRADFORD'S AND DR. LOVETT'S ARTICLE.



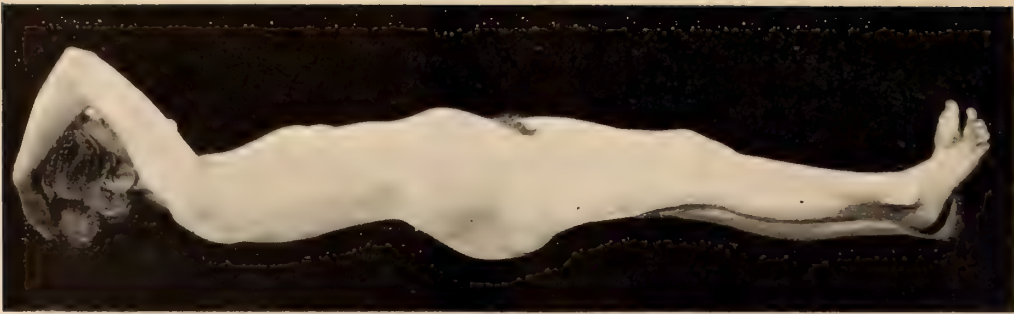
CASE I.



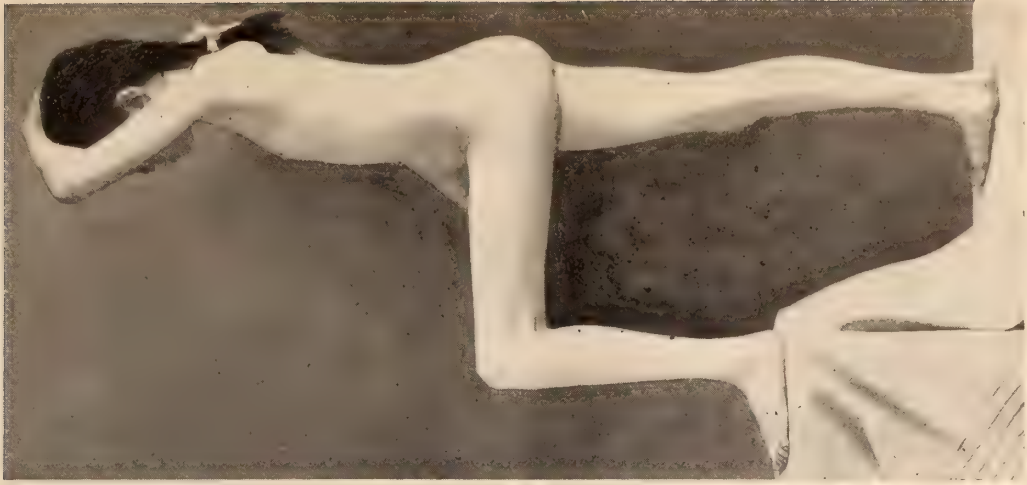
CASE I.



CASE II.



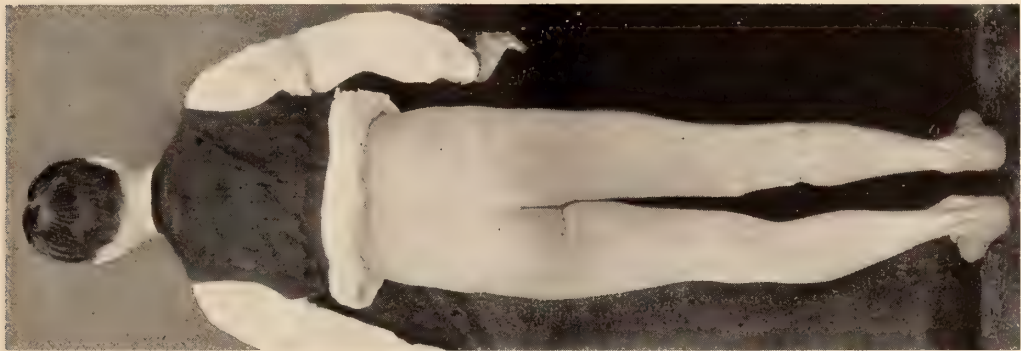
CASE II.



CASE X.



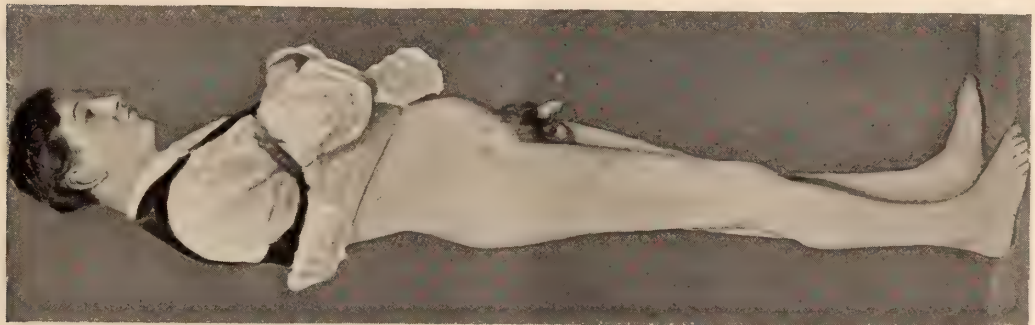
CASE X.



CASE III.



CASE III.



CASE III.



CASE XII.



CASE XII.



CASE XII.



CASE XII.



FIG. 1.



FIG. 2.



FIG. 3.



FIG. 4.

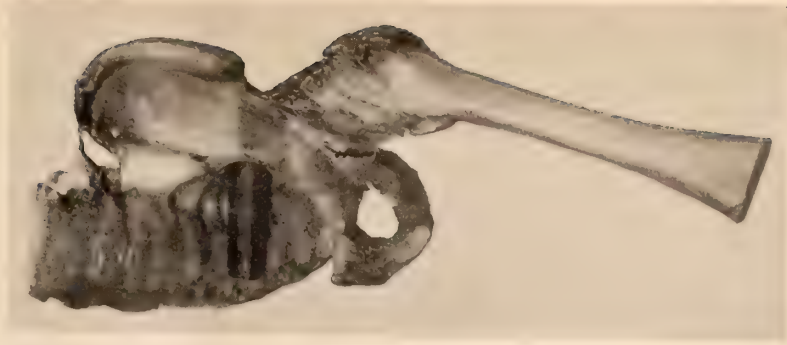


FIG. 5.

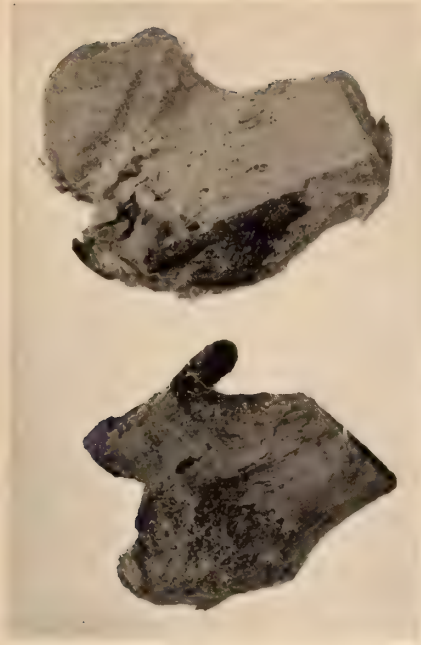


FIG. 9.

FIG. 10.

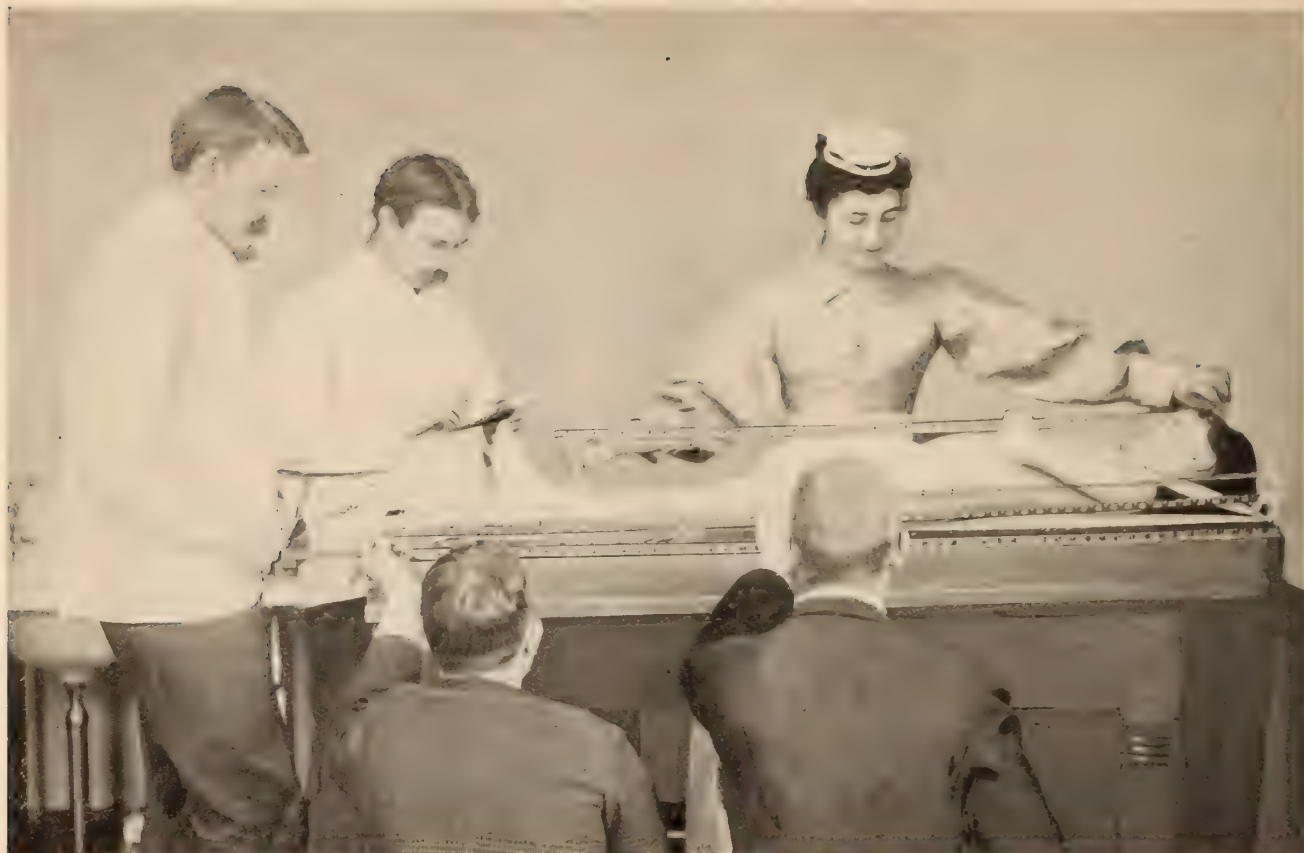


FIG. 7.



FIG. 6.



FIG. 8.

Original Communications.

DISTRACTION IN THE TREATMENT OF HIP DISEASE.*

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The object of this paper is to urge the employment of distraction as a means of treatment in certain conditions of hip disease, using the term distraction to indicate separation of the head of the femur from the acetabulum. It is not claimed that traction is the only form of treatment, or that fixation and rest are not also needed in certain stages, or that protection from jar is not essential.

Nor is it intended in this paper to discuss the question of the best method of applying traction, or to advocate any form of splint.

In offering a plea for efficient traction in hip disease, the purpose is not to present a new theory, but to urge for general adoption principles of treatment recommended many years ago by Davis, Taylor, Sayre, and others. An argument in favor of these seems superfluous to any one familiar with their advantages, yet it must be admitted that their efficient employment is not so general as is desirable. Various causes have limited the general use of thorough traction. One of these is, perhaps, the lack of pathological and experimental evidence in favor of the method. It is proposed in this paper to bring forward facts other than statistics which speak for the efficient use of traction in hip-joint disease.

If a number of pathological specimens of pronounced hip-joint disease are examined, it will be seen that the head of the femur has been crowded upward and backward. This in typical cases continues until the head of the femur is partially absorbed, the acetabulum enlarged, and finally a subluxation takes place, and the exaggerated pressure of the femur upon the acetabulum is diminished. After a while, in successful cases, cicatrization of bone follows, and ossification, with a resulting deformity—the deformity consisting of a shortened and adducted limb with subluxation, as indicated by the fact that the trochanter is higher than the Nélaton line.

This pathological process characteristic of hip disease is illustrated in a number of pathological specimens seen in the Warren Museum, which are found to resemble each other in presenting the characteristic changes, varying only in the extent of the destructive osteitis. (See Figs. 1, 2, and 3.)

The change from carious destruction is most marked in the upper portion of the acetabulum, and in the lower por-

tion of the acetabulum there is evidence of repair in some of the specimens where there was no pressure.

From the specimens examined it is clear that in hip disease the head of the femur is crowded against the acetabulum in a direction upward and backward, and that the process of repair is more advanced where the pressure is removed.

It is a well known fact that in hip disease, in the acute or subacute stage, a reflex spasm of the muscles about the hip exists, this spasm being in proportion to the amount of inflammation of the joint. The direction of the force from this muscular spasm can be readily demonstrated (see Fig. 4). On an os innominatum and a femur the origin and insertion of all the muscles which connect the two bones are marked, and small hook staples are inserted in the bones at the proper points. Small elastic rubber bands are made to connect the staples on the ilium representing the origin of the muscles with those representing the insertions on the femur. If this is done a representation will be given of the direction of the muscular force surrounding the hip. The exact amount of the pressure force of the contracted muscles dependent upon the muscular tonicity will not be represented in this way, but the direction of the resulting force will be, and it will be found to be upward and slightly backward. This muscular pressure in disease is very much greater than is ordinarily supposed.

The physiologists estimate the force of a muscle fully contracted at from six to ten kilogrammes to every square centimetre of muscular surface on cross section. In an adult, at the hip joint, the muscles connecting the femur with the ilium may represent from ten to fifteen square centimetres, and although these muscles are rarely contracted to their full extent, it is evident that the amount of force when slightly contracted is by no means inconsiderable; and during an acute spasm, when the muscles are firmly contracted, the pressure driving the head of the femur upon the acetabulum must be very great even in a child. It is well known that the muscular spasm at its acute stage is both a tonic spasm and also an acutely exaggerated spasm on any jar or violence to the hip, or even on the apprehension of any jar or violence. This spasmodic stage subsides after a while if the hip is kept absolutely free from motion, but it is a matter of experience that this spasm may persist for months, reappearing upon locomotion until the morbid process is entirely corrected and the inflamed bone is solid. It is also known that fixation of the hip joint is a difficult matter, and complete fixation (that is, the prevention of even the slightest motion) is impossible. The femur can be fixed, but the ilium can not. This is true for the reason that neither the thorax nor the abdomen can be compressed to the point of firm fixation, and the lumbar spine is capable of more or less motion.

Furthermore, no amount of fixation can draw the head of the femur away from the acetabulum—that is, distract—and pathological evidence would show that where pressure is entirely removed the process of repair is promoted. Clinically it has been observed that in a number of the severest cases of hip disease with caries of the acetabulum

* Read before the Orthopædic Section of the New York Academy of Medicine, April 20, 1894.

healing proceeds with marked rapidity after amputation of the hip joint. It would appear, therefore, that if a pulling force can be applied which would not only counteract the spasmodic muscular force, but actually distract, it is desirable to employ it, this being entirely independent of any attempt to limit the motion of the hip joint. It has been contended that the same effects could be brought about by the administration of anæsthesia and the fixation of the patient in a plaster-of-Paris spica bandage. Clinical experience, however, shows, first, that the hip is not thoroughly fixed by means of a plaster-of-Paris bandage; and second, that where muscular spasm has persisted for some time it does not relax entirely under an anæsthetic. This we have found evident in several instances of excision of the hip joint, where the finger placed upon the head of the femur at its contact with the acetabulum could detect no separation of the femur from the acetabulum. A traction force of several pounds (five to twelve pounds) was found necessary to overcome the muscular resistance, even in children enfeebled by disease and with disorganized hips, to a sufficient extent to permit the slightest distraction. An anæsthetic may and undoubtedly does diminish the pathological muscular spasm about the joint, but it does not remove it entirely.

No argument will be needed to demonstrate the fact that a certain amount of traction can be applied to the femur in hip disease. A number of experiments have been made to determine the direction and amount of traction force which is feasible and which can be worn continuously. The details of these experiments will not be given here, but it will be stated that the limit of traction has been found to be the limit of the skin to endure the strain of the adhesive-plaster pull. This amount can be placed at from ten to twenty pounds. It therefore remains to determine what is the effect of the traction force of from six to twenty pounds upon a hip joint affected by hip disease. To determine this, observations were made, first, on the cadavera of healthy hips; second, on the cadavera of diseased hips; third, on healthy individuals, and fourth, on patients suffering from hip disease.

EXPERIMENTS UPON CADAVERA.

1. *Normal Joints.*—The hip of a full-termed fœtus was prepared in such a way that the skin was removed so as to expose the muscles around the hip. It was found that under a slight amount of traction distraction was possible. This was not only visible to the eye, but it was also demonstrable on a specimen on which the skin was removed without disturbing the ligaments or muscles. A needle was inserted in the head of the femur and another in the ilium slightly above the acetabulum, a slight amount of force separating the two needles. An adult dissecting-room specimen was taken, the femur amputated below the trochanter, and the pelvis fixed. The skin was not removed and a traction force was applied. Needles were inserted into the femur and into the ilium, the skin and muscles being incised in such a way that the traction force would not disturb their relative position. Traction of a hundred pounds was applied, and it was found that the needles were separated an eighth of an inch. After the specimen

had been soaked in weak alcohol for some time distraction of an eighth of an inch was easily effected by a pull of five pounds.

On a large amount of material placed at our disposal by Professor Dwight, of Harvard College, it was clearly shown that traction distracted in all cases of femora in children dissected or undissected, and in all specimens of infants, and that the checks to distraction in adults in cadavera lay in the resistance, first, of the capsular ligament, especially of the anterior bands of the ilio-femoral ligament; second, in the resistance of the cotyloid ligament, and to a slight degree in atmospheric pressure. In children the lower edge of the acetabulum presents no resistance to a traction in the line of the axis of the body. (See Fig. 5). In adults this presents a resistance, but if the limb is abducted the resistance is avoided. Both in children and in adults, if the femur is extended to its utmost limit, the anterior bands of the ilio-femoral ligament lying on the front of the capsule prevent all distraction on any force which it is feasible to apply. If the capsule and cotyloid ligaments are disorganized, distraction is easy.

2. *Diseased Joints.*—In a specimen of a case of hip disease of six months' duration, where death took place from scarlet fever, it was found that distraction was easily made by the slightest traction. (See Fig. 6.) In this specimen the cotyloid ligament was disorganized, but the strong ligamentous fibers of the capsular ligament alone served as a check to separation of more than half an inch on traction. But within that limit even the weight of the pendent fragment of the femur distracted, as is seen in the accompanying illustration.

MEASUREMENTS UPON LIVING SUBJECTS.

Experiments upon living subjects demonstrate that traction distracts under certain circumstances.

A number of experiments have been made on the subject of traction by several observers.*

Brackett demonstrated that in certain cases in hip disease distraction resulted from traction.

The following observations have been made with much care to produce further evidence.

Measurements were made in traction both in health and in disease.

The experiments here reported were made at the Children's Hospital, and the writers are indebted to Dr. John Dane for the perfection of the method by which the experiments were carried out, and for his most careful work in connection with them.

The method of experiment was as follows: The patient was placed upon a hard table with the head against the wall, and perineal straps upon each side were secured to the head of the table by stout webbing. In some instances shoulder straps of a similar character were also

* Koenig, Paschen, and Morosoff, quoted by Lannelongue, *Coxotuberculose*, Paris, 1886. *Deutsch. Zeit. für Chir.*, 1873, iii, 256. *Bull. et mém. de la Soc. de chir.*, 1886, xii, 31. *Boston Med. and Surg. Journal*, 1880, ciii, 65, and August 30, 1888. Brackett, *Trans. of the Am. Orthop. Assoc.*, vol. ii; also, *Trans. of the Am. Orthop. Assoc.*, vol. vi, p. 127.

added. This was for the purpose of preventing the child from slipping on the table as far as possible. All measurements were taken from the wall. Measurements at different points were taken by different observers. The anterior superior spine was marked with a hair line in ink on both sides, and in some of the experiments the great trochanter was marked as well. A mark was also made at the site of the external malleolus. A tape was carried from the wall touching these marks on the side experimented upon, and on the other side it was carried to the anterior superior spine to show any tilting of the pelvis which might occur. Traction on the leg was made by means of webbing straps fastened to a lacing which did not go below the knee. Traction, therefore, was made wholly upon the thigh. Traction was made by means of a spring balance fastened to the webbing straps below the foot. In each experiment traction was first made of ten pounds; then of twenty pounds. To prevent any error caused by the slipping of the skin around the sole of the foot, a plaster-of-Paris bandage or a stout cotton bandage was applied from the toes to the knee, and upon this bandage the site of the external malleolus was marked. The heel was made to slide upon a glass plate to avoid friction. In making the experiments any case where the heel left the plate during the traction was thrown out as inaccurate. The experiment was made as follows:

An observer was detailed to watch the mark made over the anterior superior spine; another observer was detailed to notice the mark at the external malleolus; a third noted the anterior superior spine on the well side, and in some of the earlier experiments, to check the correctness of the method, independent observers were placed either at the knee or at the great trochanter. In most instances three observers were employed, one at the anterior superior spine, one at the external malleolus on the diseased side, and the other at the anterior superior spine on the well side. (See Fig. 7.)

The patient was placed upon the table as prepared, and each observer read the position that the line marked

with ink upon the part of the patient he was to watch measured on the tape. Traction of ten pounds was made. Each observer noted the position under the new conditions, and they were put down by the recorder. Traction of twenty pounds was made, and each observer noted the position of the line on the tape. These were also noted by the recorder. In every experiment, unless otherwise stated, the experiment was immediately verified with the observers changed. The method of observation, in short, was to measure the distance of the external malleolus from the wall; knowing the distance of the anterior superior spine, to make traction upon the leg, see how much the external malleolus had descended; then, noting how much the anterior superior spine had been pulled down, to find the amount of separation between the external malleolus and the anterior superior spine, this giving the amount of distraction of the hip-joint surfaces. The method of these experiments has been related in detail because upon its accuracy the value of these experiments depends.

Various sources of error were eliminated. The fact that traction was made upon the thigh alone eliminates any source of error from stretching of the knee-joint ligaments.

An error due to the stretching of the skin may be disregarded in these observations. The skin of the thigh is pulled down, but the skin of the leg is not pulled upon. Consequently, any such stretching would tend to show less lengthening than really occurred.

OBSERVATIONS ON HEALTHY JOINTS.

The first experiment, which is of special interest, is not in the table. A girl of seven, with dorso-lumbar Pott's disease, had an abscess which pointed at the outer side of the thigh. This was opened by an incision of three inches, exposing the trochanter. The hip joint was healthy. Some days after operation the girl was laid upon a table, secured in place, and an upright was erected upon the table with the needle pointing at the marked spot on the exposed trochanter. Ten pounds of traction produced no measurable effect; traction of twenty pounds produced lengthening of a quarter of an inch, as seen by the mark

TRACTION IN HEALTH.

Case No.	Sex.	Age.	Condition.	Traction in pounds.	Result in inches.	
1	Male.	6 years.	Hip disease on other side. Healthy hip examined.	10 20	$\frac{1}{8}$ lengthening. $\frac{1}{4}$ "	Verified by change of observers on repeated experiment.
2	Male.	7 years.	Hip disease on other side. Healthy hip examined.	10 20	$\frac{1}{8}$ " $\frac{1}{4}$ "	Verified by change of observers on repeated experiment
3	Female.	7 years.	Healthy hip examined. Hip disease on other side.	10 20	$\frac{1}{8}$ " $\frac{1}{8}$ "	Not verified.
4	Male.	7 years.	Healthy.	10 20	$\frac{1}{8}$ shortening. $\frac{1}{4}$ lengthening.	Verified by change of observers.
5	Male.	10 years.	Healthy hip examined. Hip disease on other side.	10 20	$\frac{1}{8}$ " $\frac{1}{4}$ "	Verified by change of observers.
6	Male.	12 years.	Two observations on healthy hip: First experiment.	10 20	No change. No change.	Verified by change of observers.
			Second experiment.	10 20	No change. $\frac{1}{8}$ lengthening.	Verified by change of observers.
7	Male.	16 years.	Healthy hip examined. Hip disease on other side: First experiment.	10 20	No change. $\frac{1}{8}$ shortening.	Verified by change of observers.
			Second experiment.	10 20	No change. $\frac{1}{8}$ shortening.	Verified four times.

on the trochanter as compared with the fixed point adjacent—i. e., the needle. If traction of twenty pounds was made, the head of the trochanter could be seen to descend; if traction was suddenly relaxed, the head of the femur could be seen to move upward.

The fourth experiment is of interest, as it was done upon a young and particularly well-developed girl without any disease. Traction of ten pounds, instead of causing lengthening, caused an eighth of an inch shortening.

The seventh experiment, which was done upon a young man sixteen years old, was of the same character. Traction of ten pounds produced no effect, but traction of twenty pounds produced an eighth of an inch shortening. This was verified four times with all the observers changed, and the result in each case was the same. It is not easy to explain this phenomenon. Possibly in these cases the amount of traction applied stimulated the healthy muscles to contraction, which vitiated the measurement by altering the axis of the leg. In the fourth experiment twenty pounds altered this and produced a half inch lengthening in a boy of seven years of age. It seems probable that in the seventh experiment, where the boy was sixteen years old, a larger amount of traction than twenty pounds would have produced a lengthening.

OBSERVATIONS UPON DISEASED JOINTS.

In these experiments traction was made in the line of the body, and, unless otherwise stated, the amount of malposition present was not enough to be noted.

As evidence of accuracy of these measurements it is to be remembered :

- 1. At the time of the experiment the observers were entirely ignorant of its result.
- 2. The error caused by the slipping of the skin tends to diminish the amount of distraction as shown by these experiments.
- 3. The experiments agree with each other and with those of other observers.

The experiments in general need no comment, except that it is interesting to note that in Experiment 8 the child had never had traction applied before, and in that case the largest amount of distraction occurred. That is to say, it seemed as if in the other cases where traction treatment had been used a certain amount of previous stretching of the muscles might have existed. In Case XII traction of twenty pounds seemed to be insufficient to cause separation of the joint surfaces, the disease having persisted some time.

The conclusions which can be drawn from this table seem to be the following : That traction of ten pounds in children before puberty as a rule produces lengthening of the leg in hip disease, and that this lengthening is due to separation of the joint surfaces ; that the amount of this separation varies in different instances, being in general less in older children than in young ones, and also varying in individual cases under apparently the same conditions, perhaps on account of some anatomical peculiarity ; that twenty pounds traction, as a rule, produces more separation than ten pounds.

It is probable that in the later cases of hip disease, where cicatrization of the capsular tissue may be supposed to have taken place, distraction is not as readily made.*

What has hitherto been stated in this paper would indicate that it is desirable to apply distraction to the hip joint in hip disease. It remains for the complete demonstration of the proposition presented to show the effect upon the diseased joint if traction is efficiently applied for a long period. This can be done both by clinical facts and by pathological specimens.

CLINICAL FACTS.

While it is difficult to present clinical evidence in a matter of this sort to any one not able to examine person-

* Transactions of the American Orthopedic Association, 1893, vol. vi, p. 127.

TRACTION IN DISEASE.

Case No.	Sex.	Age.	Length of disease.	Character of disease.	Amount of traction in pounds.	Result in inches.	
1	Male.	5 years.	7 months.	Acute.	10	No change.	Verified.
					20	$\frac{1}{4}$ lengthening.	
2	Female.	5 years.	3 months.	Acute and sensitive.	10	$\frac{1}{4}$ "	Not verified on account of
					20	$\frac{1}{4}$ "	pain.
3	Male.	4 $\frac{1}{2}$ years.	1 year.	Quiescent; fifteen degrees of motion.	10	No change.	Verified with different ob-
					20	$\frac{1}{4}$ lengthening.	servers.
4	Female.	6 years.	3 years; sinuses.	Acute; no malposition; few degrees of motion.	10	"	Not verified.
					20	"	
5	Male.	6 years.	2 $\frac{1}{2}$ years.	Convalescent; old abscesses.	10	"	Verified.
					20	"	
6	Male.	7 years.	3 years.	Very sensitive; abscess, spasm, slightly abducted.	10	"	Verified.
					20	"	
7	Male.	7 years.	3 months.	Acute; some motion.	10	"	Verified.
					20	"	
8	Female.	8 years.	1 year.	Acute and spasm; not very painful.	10	"	Verified. Never had traction
					20	"	applied before.
9	Male.	10 years.	3 years.	Moderately sensitive; very little motion.	10	No change.	Verified.
					20	$\frac{1}{4}$ lengthening.	
10	Male.	10 years.	3 years.	Not sensitive; forty-five degrees of motion.	10	"	Verified.
					20	"	
11	Male.	12 $\frac{1}{2}$ years.	3 $\frac{1}{2}$ years.	Convalescent; good motion.	10	"	Verified.
					20	"	
12	Male.	16 years.	Indefinite; over a year.	Forty-five degrees of motion.	10	No change.	Verified.
					20	No change.	

ally the cases quoted, yet a few cases are here reported. The cases were taken from the records of the Children's Hospital, and the patients have been under the care of various surgeons in service at the hospital, all, however, carrying out treatment by more or less efficient traction during the requisite stages. They were not continuously, and in some cases not at all, under the personal care of the writers. They represent cases where, from the history of the results, there could be no doubt as to the existence of well-marked disease at the joint, and are selected because of this fact. They are all hospital cases with treatment at their homes under the direction of the out-patient department after their discharge from the hospital as well as in the wards of the hospital during the acute stages when necessary. They do not represent the best results which can be obtained under more thorough nursing, under the direction of a trained nurse or an intelligent mother in exceptional cases. They are hospital cases treated in a routine way. They are intended to illustrate the fact that in cases thoroughly and properly treated by traction subluxation can be prevented; that in cases of the severer types, if treated early, some motion of the hip joint can be preserved; and that in the less severe cases, or cases where prompt and early treatment was possible, this can be expected.

In the cases here reported the diagnosis of hip disease was certain. All cases were rejected where the evidence of hip disease was doubted, both from the records and from the statements of the examiners. The record of motion is also without doubt in the cases where it is recorded, as it was made with particular care; and all cases were rejected where there was any doubt. The motion was tested by placing the patient on the back, with one hand upon the pelvis, the other manipulating the thigh. The examination, diagnosis, and subsequent observation were made by experienced observers. The cases had all been under observation for a long period.

The cases may be grouped: First, as those of hip disease of a severe type, as proved by the development of abscess or the arrest of growth; second, cases without abscess, but with persistent spasm, limitation of motion, and deformity, and a long period of pain and sensitiveness; third, the lighter form of disease treated before the severe symptoms had been developed. These cases may be regarded as representative ones seen in the clinic at the Children's Hospital where continued treatment was carefully carried out.

CASES OF SEVERER TYPE.

CASE I.—Annie F. entered the out-patient department of the hospital in February, 1888, being at that time fifteen years old. The disease had been in progress for two years, one of which had been spent in bed. Pain had been severe and night cries frequent. An abscess had formed, and the joint was flexed and fixed. Traction treatment was begun and continued for two years with traction splint and crutches. A protection splint was worn for four years more.

Present Condition.—Twenty-one years old; strong, healthy woman; weight, one hundred and twenty-one pounds. The sinus has been healed three years. There is motion in flexion of ten degrees at the hip joint. There is no motion in other

directions. Patient walks well. There is a three-inch shortening, but the trochanter is not above Nélaton's line. There is no deformity. (See figure, Case I.)

CASE II.—Nellie M. entered out-patient department of the hospital September, 1884, when eleven years of age. The disease had lasted for three years. There had been much pain, and the patient had been treated by high shoe and crutches. Abscesses had been present and a sinus remained. Persistent muscular spasm and pain. Traction treatment was carried out, and a traction splint worn for three years and a half; after this a protection appliance was worn and is still worn, although no symptoms have been present for a long time.

Present Condition.—Twenty-one years of age, strong and healthy. Walks firmly without splint, but with a limp. The trochanter is below Nélaton's line. There is shortening of two inches from difference in growth. Motion of the joint limited except in flexion. (See figure, Case II.)

CASE III.—George K. entered the out-patient department of the hospital in March, 1887, when fifteen years and a half old. The disease had existed for four months. Traction splint was applied. The hip became sensitive, and an abscess appeared the following year. Muscular spasm lasted for two years and a half. Traction was continued for three years, and a protection splint worn four years longer.

Present Condition.—Twenty-two years old; healthy, strong man, walking without a splint. There is an inch and a half shortening of the leg, but no subluxation, the trochanter being below Nélaton's line. The position of the leg is normal. There is no motion. (See figure, Case III.)

CASE IV.—Hattie H. came to the out-patient department of the hospital in March, 1886, when five years old. Disease was of six months' duration. The leg was flexed to an angle of forty-five degrees. There was much pain and sensitiveness. The muscular spasm continued for nearly two years, and an abscess followed. Traction treatment was carried out for two years, a traction splint being worn a good portion of the time. A protection splint was used for three years more.

Present Condition.—At the age of thirteen the child is strong and well. The trochanter is below Nélaton's line. There is a shortening of half an inch. Flexion of ninety degrees is possible. Walks without a limp. There is no deformity.

CASES OF THE SECOND CLASS.

CASE V.—Sophie R. entered the out-patient department of the hospital in January, 1886, when six years of age. The disease had lasted for nine months and the hip was fixed. There was pain, and the spasm lasted for two years. Treatment by traction was carried out for three years and by protection for two years more. No abscess occurred.

Present Condition.—January, 1893, there was half an inch shortening. Flexion was possible to a right angle. Rotation and abduction limited.

CASE VI.—Clara L. came to the out-patient department of the hospital in March, 1888, when seven years old. The disease had existed for two years. At the time when first seen at the hospital there was a distortion; the leg was abducted, fixed, and very sensitive, with persistent pain and sensitiveness. The muscular spasm lasted for three years. Bed treatment and admission to the hospital were required for pain and sensitiveness. No abscess developed. Treatment by traction was continued for three years and a half. A traction splint was worn for three years, protection splint for four years and a half afterward.

Present Condition.—The patient is thirteen years old, strong and well; slight motion at the hip joint. There is no deformity

except slight permanent flexion. The diseased limb is two inches shorter than the other; the trochanter, however, is below Nélaton's line.

CASE VII.—Robert H. was brought to the hospital in March, 1888, when four years old. The disease had lasted about two months. There was much muscular spasm at the hip, with marked pain, which persisted for some time, with swelling about the hip. Bed treatment was carried out for a month. The muscular spasm improved after six months, but remained for two years. Traction treatment was applied during all that time, and a traction splint worn while the patient was up. A protection splint was worn for two years more.

Present Condition.—At the age of ten the patient walks without a limp. There is a shortening of half an inch in the affected limb, but no deformity. Motion is possible to ninety degrees in flexion; rotation is limited.

CASE VIII.—Esther M. came to the out-patient department of the hospital in 1888, when eight years old. Disease had lasted for six months. The hip flexed and adducted. Pain was severe. No motion at the hip joint was possible. Pain and sensitiveness were marked and bed treatment necessary. Treatment by traction was carried out for three years, and protection for three years more. Protection splint is still worn as a precaution.

Present Condition.—The patient is fourteen years of age, strong and well, and can walk without a splint. Forty-five degrees of motion is possible in the direction of flexion. There is an inch and a half of shortening, but the trochanter is not above Nélaton's line. There is no deformity.

CASE IX.—Lizzie C., brought to the out-patient department of the hospital in May, 1886, when eight years old. Disease had lasted six months. Leg was fixed and abducted and there was no motion. Muscular spasm continued for five years. There was no abscess, but patient required entrance to the hospital and bed treatment several times. Traction treatment by means of weight and pulley and traction splint continued for six years; protection for two years more.

Present Condition.—Sixteen years of age, strong and healthy girl, with a shortening of half an inch. Ten degrees of motion possible at the hip joint. There is no malformation nor deformity. Can walk without pain, but at times wears the protection splint.

CASE X.—Anastasia H. entered the hospital in 1886, when five years old. Disease had been in progress for several months. Night cries had been noticed for three months. Admission to hospital for bed treatment. Patient remained in hospital three months. There was no abscess. Spasm continued for two years. There were pain and persistent adduction. Traction treatment carried out for two years and a half; protection for a year and a half longer.

Present Condition.—Thirteen years old; girl is strong and well, walks without a splint and with no perceptible limp. There is an inch shortening, but no deformity. Motion of ninety degrees possible, but limitation in other motions. (See plate, Case X.)

CASE XI.—Nellie M. C. entered the out-patient department of the hospital in April, 1886, when five years old. Disease had lasted six months. Hip was flexed and fixed at an angle of forty-five degrees and very sensitive. Spasm remained for two years. Traction was carried out for two years and a half, and protection for five years longer.

Present Condition.—Child thirteen years of age, strong and well. There is a permanent flexion of ten degrees, but no deformity. There is a shortening of an inch and the child walks with a limp, but needs no apparatus.

CASES TREATED AT AN EARLY STAGE.

CASE XII.—James G. entered the out-patient department of the hospital in April, 1890, with a history of pain in the knee at night for several weeks. Pain continued for some time. Limitation of motion. There was, however, but little muscular spasm. A traction splint was applied and worn continuously for two years. In August, 1892, a protection splint was applied and has been worn since that date.

Present Condition.—The position of the leg at present is normal. There is no shortening. Motion beyond ninety degrees. There is no muscular spasm.

The diagnosis in this case is based upon the pain which persisted, the limitation of motion, and the length of time which the muscular spasm persisted. (See figure, Case XII.)

CASE XIII.—Eva C. The patient entered the out-patient department of the hospital November, 1891. There was severe pain, with night cries, muscular spasm, and deformity, and these symptoms had persisted for several weeks. The patient entered the wards of the hospital and remained in bed with traction treatment for six weeks. A traction splint was worn for a year and then removed by the parents, the child being considered by them in perfect health. The child was allowed to use the leg freely, and a relapse occurred after six months, with pain, night cries, spasm, and deformity. Traction treatment was renewed after a preliminary bed treatment with fixation and traction.

Present Condition.—At the present time, three years and a half after commencement of treatment, there is slight permanent flexion and free motion of twenty degrees. There is no subluxation and no shortening. Patient still wears a traction apparatus.

This case is reported as indicating a lack of perfect result. Treatment was discontinued by parents for several months and a relapse occurred.

The case is still under observation, but the ultimate result, which could in all probability have been without limp, will be a slight limp.

PATHOLOGICAL EVIDENCE.

The effects of traction, when thoroughly carried out, can be seen in the accompanying specimens.

The first is that of a boy of nine, who was attacked with hip disease of an acute form six years before. He was treated with traction efficiently for a long time, first with recumbent fixation, later with an ambulatory traction splint and crutches, and afterward by a protection splint. An abscess developed in the early stages, was incised, and it subsequently healed entirely. The boy recovered completely after a number of years from his hip disease, having, however, a limb which was slightly shorter (an inch and a half) than the other and with limited motion. The position was good, and the leg was thoroughly useful and remained so two years after the discontinuance of all treatment, the boy being as active as any boy at this time. He was, however, subsequently seized with tubercular meningitis, being of a tubercular family, and died. At the autopsy complete cure of the hip disease was found, and this specimen also shows that there has been no widening of the acetabulum, and but little alteration in the shape either of the acetabulum or head of the femur. (See Fig. 8.)

A comparison of this specimen with those of severe hip disease where traction was not used speaks most emphatically for the thorough use of the method.

This second specimen is of the head and neck of the femur where excision was done after two or three years of efficient treatment by traction, but the reparative process was not sufficient in this case to establish a cure; the patient's general condition failed, and excision was done. It is to be noticed that there is very little alteration in the shape of the head of the excised femur. (See Figs. 9 and 10.) This, compared with the accompanying specimen of an excision of a patient with hip disease of similar severity and duration where no traction had been applied, would appear fairly to show the effect of traction in saving the head of the femur from destruction.

It can not be supposed that the best results can be obtained by the application of inefficient traction. A sufficient amount of traction, constantly applied during the stage of muscular spasm, is needed. It is, of course, not the only therapeutic measure which is required; fixation and protection are also needed at the various stages. If traction is not applied properly, or is applied at the wrong time, or is insufficient in extent, it is no more efficient than a drug in judiciously or wrongly used or administered at the wrong time. Judgment is required in the use of this measure as of any other, and a great deal of care and attention to detail is necessary to insure the constant application of from eight to ten or fifteen pounds' traction uninterruptedly for two or three or six months, not only on the part of the surgeon, but on the part of the nurses and assistants. It is owing to the defect in this respect that in many cases treatment by traction is ineffectual, and the results obtained are not as satisfactory as desired. This leads to an unjust condemnation of the methods of treatment by traction by those who have tried this method, and, having met with unsuccessful results, have blamed not their own method of application, but the method in general, which is as irrational as if any one who administered a drug in an insufficient dose should lay the failure to the drug, when it is properly due to its faulty administration.

The thorough use of traction—*i. e.*, to the point of distraction—requires on the part of the surgeon not only a familiarity with the mechanical details of apparatus and the proper application, adaptation, and fitting of appliances suitable in each case, but the ability to arrange for such co-operation and assistance on the part of nurses or attendants as shall insure the continuance of the necessary amount of traction at all times. If this is not done the results are not complete, just as the lack of asepsis in an assistant or nurse may vitiate results in an operation, no matter how careful the surgeon may be personally. In the same way if, through the neglect of a nurse, a hip which needs continued traction of ten to fifteen pounds for protection against blows from muscular spasm is left during an acute stage for a time with a traction of two pounds, the joint may be seriously damaged.

Unusual care is required both in the management of cases and in the direction of hospital services. This care, however, is not greater than is possible if sufficient attention is given to the subject and the surgical indication borne in mind.

In conclusion, it is claimed that at a certain stage in

hip disease traction force is desirable; that the amount of traction should be in proportion to the amount of muscular spasm, and continued as long as the spasm persists. It is also clear and demonstrable that an efficient traction force distracts, and it is manifest that distraction, or the separation of one inflamed bone from an adjacent inflamed bony surface, is desirable; that in this way every chance is given to promote cure and cicatrization of the previously inflamed bone. If an indication for surgical treatment is ever clearly written in pathological specimens, certainly that of distraction should never be overlooked. It should always be remembered that in treating hip disease at a certain stage the object should not be simply rest, or fixation, or protection from jar, but actual distraction, and that traction short of this is inefficient.

THE PRODUCTION OF DISEASES BY SEWER AIR.

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(Concluded from page 109.)

SOME of the medical reasoning is not much better. For instance, Barnes (*Brit. Med. Jour.*, July 28, 1888) studied fifty separate outbreaks of diphtheria for the purpose of discovering if diphtheria may not arise from certain combinations of filth and unsanitary conditions independently of a pre-existing case of the disease. According to him the prevalence of diphtheria in rural districts is explained by the want of suitable systems of drainage, combined with filth in the form of decomposing animal matter. In the majority of instances he found no previous case as the starting point of each outbreak. Besides, the author claims that the winter months, when most diphtheria is met with, are unfavorable to the development of low forms of animal or vegetable life—he forgets that the throats and the houses are warm—and believes that because sore throats existed previous to and simultaneously with the outbreaks of diphtheria, it follows that we have to deal not with a specific germ but with a poison gradually developed.

In the *Medical Record* of January 28, 1893, Dr. Louis Fischer approached the subject a little more seriously. He published a very interesting article on The Result of Examinations of Sewer Gas which Escaped in Tenement and Private Houses wherein Cases of Diphtheria Occurred. It is to prove that escaped sewer gas will easily enter houses and poison their inmates. As a single positive proof would prove more than a thousand negative observations would disprove, I have carefully read and reread the paper. I can not learn, however, that his conclusions are unimpeachable. A child had diphtheria; the house was a tenement, four families on a floor; in the previous winter there had been diphtheria on the floor above and on the floor below on the same side of the house. The doctor says "the disease broke out successively on different floors and was seemingly spread by way of the sewer

pipe leading up through the house. On the other side of the hall diphtheria did not break out."

He then describes the deterioration of the air in the room, due to the closing of windows in the narrow quarters and to the proximity of the sink into which sewage and refuse was emptied, and adds that underneath this sink there was a trap which served as a reservoir and to exclude noxious gas coming from the sewer.

He does not say that the trap was defective, nor that there was any reason why the disconnection of room and main sewer should have ceased. He simply assumes that because there was diphtheria above and below in the previous winter, there must be a communication of the germs through the pipes into the intermediate floor, which, however, was protected by a trap a year afterward.

Moreover, he alludes, himself, to the fact that what is thrown down into the sink and the reservoir underneath may be deposited there and, under favorable circumstances, may there find a convenient culture medium. Still more, he reports that he found bacilli in the air of a room where diphtheria existed, and in an adjoining room (not connected by a waste pipe at all); also that he made a series of examinations of air in a number of other houses with the following results: Of eighty-five experiments performed, forty-five must be excluded owing to carelessness and breakage of plates. Of the remaining forty, twelve yielded pathogenic bacteria; eight, different micro-organisms (non-pathogenic); and twenty were negative. Thus, in thirty per cent. pathogenic bacteria were found in miscellaneous houses, which merely proves that pathogenic germs are ubiquitous and waiting for chances. These chances are *reduced general health, diminished power of cell resistance, and denuded surfaces*.

After Dr. Louis Fischer had looked for dangers "in the gases arising from sinks," and emphasized that "sewer traps themselves may become, if not properly flushed, breeding grounds for bacteria," Dr. F. W. Koehler claimed at once that "defective sewer pipes, dampness, and lack of cleanliness account for most cases of diphtheria occurring in private practice" (*The Prevention of True and False Diphtheria, Medical Record*, September 30, 1893). The better part of his paper may be repeated here, not because it is new, but because it is true: "The waste pipe of a washstand or sink may be a source of infection. I refer to that part of the pipe between the external part of the external opening and the nearest trap. This section of the sewerage gets the warmth of the house, has quantities of organic matter poured into it, has water more or less constantly running through it, always contains air, and is consequently a most perfect culture ground for many kinds of bacteria. The traps may therefore be in perfect order, and yet we may not be safe. Some device to shut off also this part of the sewerage system from all communication with the atmosphere of the house seems to me badly needed." In reply, I should say disinfect sink and trap once a day.

In all this question of cesspool and privy exhalation, what we know tolerably well is this, that it may result, as it frequently does, in a pharyngitis—the pharyngeal and naso-pharyngeal mucous membrane being exceedingly irri-

table—and that bacilli, being ubiquitous during the reign of an epidemic, may find a nest in the sore surface.* The *Bacillus diphtheriæ*, in particular, is not in the cesspit and has not been found there, for putrefaction deals as inclemently with bacilli as with other organic matter.

There is, however, no doubt as to the difficulty encountered when the origin of an individual case of diphtheria is to be explained. The following case will give an instance of the various ways in which diphtheria may arise without sewer gas or spontaneous generation.

Dr. W. W. Ralston, of Horton, Kan., communicated to me the case of a boy who died in a neighborhood where no case of diphtheria had ever been known to exist, who lived under the best possible circumstances—good drainage, good air, no contagion, good health. Two years previously a child died of diphtheria in Chicago, where the family then lived. Afterward they lived in Detroit, later they moved to Kansas, and with them traveled a swab which had been used on the diphtheritic child in Chicago. When the little boy was (in Kansas) taken with a suppurating amygdalitis, the mother bethought herself of her swab, and used it to apply an alum solution. Thus it was that her boy died (*Arch. Ped.*, 1889, p. 131).

In the face of such a fact the weight of such cases as will now be quoted is of not much account.

Dr. Philip Francis Harvey (Fort Keogh, Montana) publishes two cases of diphtheria from "faulty drainage" (*Lancet*, 1892, i, p. 1184).

The first case was that of an officer of the United States army who had not been exposed to any known source of contagion. The case proved to be very malignant, and terminated fatally by heart paralysis after about eight days, progress. One week later the patient's wife developed a fatal attack. The disease originated *de novo* at an isolated military post in a new brick building. The location of the post was high and dry on a plateau between the confluence of the Mississippi and Minnesota Rivers.

A thorough sanitary inspection of the house was made, and a faulty drain was found in the basement with some leakage of sewage into the earth at that point. Here, then, was the explanation of the origin of the disease, and a demonstration how rapidly the diphtheritic poison may be formed under circumstances favoring its evolution, as the cases occurred in January and the premises were first occupied the preceding November.

Another case was reported, under the same heading, by Dr. N. Mallins (*Lancet*, 1892, i, 579). It was that of a boy ten years of age, who was attacked with membranous sore throat, followed in a few weeks by almost universal paralysis, a circumstance that proved its true diphtheritic nature. The boy slept in a small room directly over the scullery, and for weeks past a most unpleasant smell had pervaded this room. The scullery sink was found to communicate by an untrapped—in places broken—pipe with a cesspit situated about twenty-five yards from the house. There

* It is a common experience that in a family of children such as are suffering from a catarrh will be taken with diphtheria, if any of them are.

was, therefore, every opportunity for the foul air from the cesspit to be siphoned into the house. The patient was carefully isolated, and, though he was one of a very large family of children, no one else caught the infection. As there was not a single case of the disease in the neighborhood, as the boy did not mix with any children except his own brothers and sisters, and lastly, as he was the only one in the family sleeping in the line of escape of foul air, the conclusion seems irresistible that in this case, at all events, the diphtheritic poison was conveyed in the emanations from a foul drain. such emanations polluting the air that was nightly breathed. How the specific bacillus got into the cesspit is, of course, a very difficult matter to explain.

The possible causes of an invasion of diphtheria are so many that a resort to an autochthonous origin ought to appear superfluous. Perhaps, however, it is the very multiplicity of possibilities which acts confusing and bewildering: the vulnerability of the young mucous membrane, the frequency of nasal and pharyngeal catarrh, the narrowness of the nose, the large size and the softness of the tonsils, the frequent fermentation of food in the mouth, the sucking of the soiled little fingers, together with the influence of family disposition, which is more powerful in the young. Their constant intercourse with each other in large families and in densely populated houses and districts, in schools and on playgrounds, the possibly long period of incubation during which the disease is contagious though giving rise to no symptoms, act as just so many predisposing causes of contagion; and the large number and size of the lymphatics renders every attack so much the more dangerous.

The very fact that diphtheria need not always be of the same type; that many cases of lacunar or follicular amygdalitis ("tonsillitis") are diphtheritic—a fact proclaimed by me dozens of years ago, which I have the satisfaction of seeing more and more, though with great hesitation at first, established even by bacteriologists—that there are as many cases out of bed and out of doors as in bed and indoors; that, particularly in adults, diphtheria may last long and give rise to but few embarrassing symptoms, and that a mild case of diphtheria, may produce very serious ones by contagion, renders contagion by nursery maids and other domestics—by teachers, seamstresses, sick nurses, workmen, factory girls, shopkeepers, barbers, and all other persons mingling with the many extremely easy. The persistent vitality of the diphtheria germs, as is well known, may extend over years. They cling to solid and semi-solid bodies, are imported in milk, cling to walls and floors, to toys, to curtains, towels, clothing, and bedding which is so often kindly donated to the poor by the benevolent well-to-do when they wish to get rid of their dangers. They stick to omnibus and carriage cushions, to rail-car seats, to the either ready or custom made coat on your shoulders near which your baby will nestle—the very coat that is sold in Broadway palaces after it has been made in the pest stricken tenement sweating shop. The very restlessness of our people, the frequency of moving, is another cause of doubling the number of cases. There can be no doubt besides that many animals—horses, chickens, cows—

have and spread diphtheria. Thus it appears that we ought to think twice, and indeed many times, before admitting among the causes of diphtheria new factors which can not be proved.

"No contagion could be traced." That is the introduction to every wild and unproved theory of indigenous spontaneous generation. When a case of cholera breaks out in a village a thousand miles away from the coast, is there anybody in our time who looks after chemical poison in a well or for filth on the roofs? You look for direct or indirect contagion from a tangible source. Why not so in diphtheria? In the *New York Medical Journal* of September 27, 1886, I have quoted from Isambert the case of a medical assistant who had nasal diphtheria many months, and then traveled half a year to get rid of the last remnants. He fully recovered; but how many deaths did he spread—from railroad car to railroad car, from stagecoach to stagecoach, from hotel to hotel? How many may have been the physicians who searched in vain for the causes of the sporadic cases suddenly springing up in their places, and the epidemics generated by them along the roads on which the luckless French wanderer after his own health strew out his curses? Nobody suspected the traveler who left days ago, just as nobody may be able to trace every outbreak of cholera to the unknown person who carried it upon his person or in his bowels. Nor is this an isolated case of a long duration of diphtheria. Cadet de Gassicourt operated for laryngeal diphtheria after eighteen, twenty-three, and forty-three days. Sanné had croup patients who recovered after twenty-seven, thirty-two, and sixty days. I know of many cases of diphtheria protracted into the second or even the third month.

Such facts, pointing as they do to the ready communicability of diphtheria, have influenced my opinion from early times. I can not see anything miraculous in the sudden appearance of a *Bacillus* or a *Streptococcus diphtheriæ* in a person apparently not exposed to it. During an epidemic there is *nobody not exposed* to it, and everybody is subject to it under favorable circumstances. The latter mean a fit condition of the human integument, either cutis or mucous membrane, which makes them liable to become a resting place for the germ. That fit condition is a slight or severe wound, abrasion, denudation of the surface. As no healthy surface becomes erysipelatous in spite of erysipelas being epidemic, as Fehleisen's bacillus requires a sore, so diphtheria, being ubiquitous and waiting for a chance, will stick to a cutaneous wound, a stomatitis, a pharyngeal or nasal catarrh, and will rapidly multiply. A resected tonsil will thus be covered with a pseudo-membrane within a day. Only yesterday Dr. Caillé reported in the meeting of the American Pædiatric Society such a case. It terminated in generalized (including laryngeal) diphtheria. Without the operation, that tonsil might not have been affected at all.

In my paper on diphtheria and diphtheritic affections (*Am. Med. Times*, August 11–18, 1860) I acknowledged contagion only as the cause of the origin of an individual case. In 1861 * Jenner, after an experience of five years among

* *Diphtheria; its Symptoms and Treatment.*

the poor and the rich, maintained the independence of diphtheria from bad hygienic conditions, and stated even a larger mortality among the rich. In a lecture published in *Guy's Hospital Gazette*, 1873, Samuel Wilks reports that it spread from the focus in Folkestone along the eastern counties of England, apparently quite irrespective of soil, impure atmosphere, or drainage. As regards London, it was more frequently met with in the better class of houses in the suburbs than among the lower and dirtier habitations of the poor. These views were not exactly refuted by good observations, but did not strike the fancy of the medical public. Jenner's view was strongly condemned in an otherwise favorable review contained in the *Dublin Quarterly Review*, August, 1861; nor was the conviction of the profession in this respect much changed before the appearance last year of Thorne Thorne's book, which again proves, as I tried to do thirty-three years previously, contagion as the ætiological influence, without relation to bad sanitary conditions as regards water supply, sewerage, and drainage.

In the discussion on the same question contained in the *British Medical Journal* of the two last months of 1893 and the beginning of 1894, Dr. Wilks again takes a leading part. His opinions on the same question have not changed. Davis, Priestley, C. M. Jessop, J. Bunting express themselves in the same way. George Johnson, Parker, C. N. Allfrey, H. G. Warrey (who assumes that every "membrane in sore throat is always diphtheritic"), and P. G. Marriott favor the sewer-borne origin of the disease; and George Johnson associates with diphtheria, in this respect, typhoid fever, pneumonia, puerperal fever, and albuminuria, which "may have such an origin," and charges that "those who believe in contagiousness only will not look for bad drainage." A few of his cases, which are to prove his point of view to be correct, are the following: In a wealthy house an infant was circumcised for phimosis; the wound became diphtheritic, and did not heal until the patient was removed to another house. Two servants were also affected with diphtheria; after defects in the sewer pipes were found and corrected no other case occurred. Another case is that of a butler in a wealthy and healthy house who contracted diphtheria. An untrapped sink pipe was discovered near his sleeping-room. He recovered, and there was no other case after the defect was mended. More, however, we do not learn, particularly nothing to exclude the hundred possibilities of contracting the disease.

If you will permit a personal remark I should here say that in spite of my positive statements, repeated a dozen of times in writing,* and a hundred times in lectures and discussions, I have personally been claimed as favoring, in the case of diphtheria, the sewer-air theory. As late as this year, Emil Feer (*Ätiologische und klinische Beiträge der Diphtherie*, 1894) says (page 67) that "both in England and America there is a prevailing opinion, both among the medical men and the public, that uncleanness of dwelling and people is a main cause of disease; in

these countries diphtheria is often called a filth disease. According to Jacobi the connection between diphtheria and filth has, it is true, not been proved, but the author states as the result of his conclusions that it exists; for there are many reports which exhibit the co-existence of diphtheria and filth." A few moments later he gives me credit for a teaching which is also opposed to life-long convictions, for he adds: "The injurious influence of sewer gas and cesspools is emphasized by Baginsky, Monti, and English and American authors (Jacobi)." Of my writings, he quotes only my article on Diphtheria in Gerhardt's manual, 2d volume, of 1877. The only allusion to sewer gas contained therein is found on page 703, where I say that the influence of the seasons on the origin and the course of diphtheria is but conditional and indirect, in a similar way as that of "filth," or sewer exhalation.

In the November number, 1888, of the *Archives of Pædiatrics* the late Dr. Charles Warrington Earle published a brief article on "the influence of sewerage and water pollution on the prevalence and severity of diphtheria." He begins by saying that "it has been claimed by many that imperfect sewerage has been the cause of diphtheria, and the people, urged on by the opinion of the doctors, frequently blame a sewer for poisoning a family and producing diphtheria, when the cause should be placed elsewhere. It is much better for us to recognize the true cause, if it is possible to find it, rather than to attack an imaginary one, for it is possible that while we are fighting the supposed gas as the cause, we are losing sight of the real enemy which should engage our attention."

"Jacobi says that cases of diphtheria which are traced to exhalations from sewers, or even to filthy habits of life, are very frequent. This opinion, especially in regard to sewerage, has been reiterated by scores and hundreds of physicians. It represents the prevailing idea of American physicians." Then Dr. Earle prints the opinions of a number of correspondents who deny the origin of diphtheria from sewerage, and shows me the errors of what he believes to be my ways.

Now, as it is both unhistorical and unpleasant to be charged, after a life in part spent on the study of diphtheria, with the very erroneous views always combated by me, I tried to refute Dr. Earle's allegations in the November number, 1888, of the *Archives of Pædiatrics* (page 744). As my letter to the editor contains in the briefest possible way a statement of what I believe to be the facts, I beg to here repeat them.

"In my very first paper published on the subject (Diphtheria and Diphtheritic Affections, *Amer. Med. Times*, August 11, 1860, p. 96), I looked for the source and epidemic occurrence of diphtheria in contagion to the exclusion of any and all other alleged causes.

"On page 34 *et seq.* of my *Treatise on Diphtheria* (1880) you may read these remarks: 'Cases of diphtheria which are traced' (I might have said attributed) 'to exhalations from sewers (or even to filthy habits of life) are very frequent. Yet typhoid is attributed to the same causes. So is dysentery. Can these foul exhalations produce alike diphtheria, typhoid, and dysentery? Do these diseases

* With the exception of a careless expression on page 50 of my *Treatise on Diphtheria*, which is quite in contrast to my previous statements in the same chapter.

arise from a common poison? Or is the poison of a treble character, so that a part may give origin to diphtheria, the other part to typhoid, the third to dysentery? In a house in West Twenty-second Street, between Eighth and Ninth Avenues, in New York, three children and a female help were taken sick, two with dysentery and two with typhoid, in the course of a month. In the same house, in two of the children diphtheritic sore throats were of frequent occurrence.

"Have we to deal in such occurrences with special influences, or only with a lowering of the standard of health, thereby affording other morbid influences an opportunity to exercise their power?"

"I then quote (page 35) the results of the researches of the Board of Health of the State of Massachusetts, the third of which reads as follows: 'A positive connection between diphtheria and filth can not be verified, although the latter adds to the evil influence of moisture.' This statement I call (page 36) 'modest and sensible,' and one 'for which we have to be thankful.'

"In Diphtheria Spread by Adults (*New York Medical Journal*, September 24, 1884) I say: 'No permanent spontaneous generation is claimed or has been proved for cholera, scarlatina, or variola. Nobody looks for their primary cause in moist walls of houses, dry dust of streets, in the prevalence of previous house endemics of typhoid fever, measles, or other eruptive diseases, in bad ventilation, in the odors of hospital wards, in putrefying kitchen refuse, or in the exhalation of sewers. But both medical men and laymen are found to be inexhaustible in accusing and condemning all those detrimental influences, not as being predisposing elements, not because of their injurious influence on health in general and on the condition of the mucous membranes in particular, but as the main and frequently sole causes of diphtheria. In the minds of many physicians, diphtheria is intimately linked with sewage; with them the trap of the water-closet and the plumbing of the cellar are the first objects of attention, the patients and their families, fauces and nares coming in for a relatively smaller part of their care. If they would pay more attention to the direct sources of contagion, which is something understood and definite, than to the indefinite and unproved presumption of specific poisons in the outlets of the house or the inlets from the sewers, their ætiology would be something more positive in a great many cases.'

"I do not mean to say that the house hygiene ought not to be looked after by the physician in every case of sickness, but the more I have seen the more it has occurred to me that we may live to reach the conviction that there is but one predisposing element, viz., a sore mucous membrane, and but one cause of an individual attack of diphtheria, viz., direct contagion.'

"In a paper on The Therapeutics of Diphtheria, read before the Medical Society of Philadelphia, May 23, 1888, which has been copied by half a dozen medical journals, I made the following remark (reprint, page 1): 'Diphtheria is a contagious disease. There is probably no spontaneous origin of diphtheria, any more than there is a spontaneous origin of cholera or scarlatina.' And again (page 3):

'When an attack of diphtheria has made its appearance, it is well enough to examine the hygienic condition of the house, with its deteriorating influences on the general health of the inmates, but look after the source of the case in the persons of friends, attendants, and help.'

"In my Remarks on the Nature and Treatment of Diphtheria, made by invitation before the Section of Diseases of Children of the British Medical Association, August, 1888 (*British Medical Journal*, September 22, 1888), there are found the following sentences: 'Foul air and sewer gas do not create diphtheria; they do create dysentery and typhoid, or such a condition of general ill health and malaise as to afford the diphtheritic virus a ready resting place. There were plenty of malodorous privies and foul smells fifty years ago, but no epidemic of diphtheria. Besides, and mainly through the careful observations of English physicians, such as are contained in Dr. George Turner's report on diphtheria in the lower animals and many others, the sources from which diphtheria may come are very many. Pigeons, fowls, turkeys, chickens, pheasants, cats, horses, sheep, cows are just as many sources of diphtheria for man. Foods of all kinds, vegetables and milk, will transmit it. It sticks to furniture, floors, and wall paper, railroad cushions and school desks. No spontaneous generation is required to explain its ravages.'

"These extracts, Mr. Editor, ought to prove that Dr. Earle does not stand alone with his views so ably discussed in your journal. Like him, I have always lamented the disposition of so many of us to look for the cause of an individual case of diphtheria in the wrong quarter. Like him, I have often found a professional brother inspecting traps and cellar floors, while the rest of the children of the family were permitted to play in the rooms and about the beds of those affected with the malady.

"I have never believed, nor do I believe now, that sewer gas *per se* is a cause or the cause of diphtheria. A sewer or a trap can convey diphtheria only when that particular sewer or trap has been infected with diphtheritic poison."

After these quotations and to day's remarks, I hope I shall be counted among those who will rather look for the cause of diphtheria in a germ communicated, directly or indirectly, from a patient or his belongings than from sewer air. The latter can not be made responsible enough in an occasional case where the introduction of germs into the sewer or into the sewer air, and their presence in the pipes, and their introduction into a house and their presence there are proved facts. My convictions tally with the experience of those who have seen much.

In a conversation with Dr. J. D. Bryant, for many years health commissioner of the city of New York, I learned a number of interesting facts. Since 1873 there has been an incessant war against defective plumbing; traps were enforced, and since 1878 roof waste pipes. When Dr. Bryant entered upon his office the earthen or brick connections of house drains with the street sewers were replaced by iron. In reference to every case of infectious or contagious disease a strict inquiry was required, on the part of the medical inspectors, concerning ventilation and sewers, even of the adjoining premises. Many inspectors who did not find

or report actual defects were discharged. The general result of the investigation concerning the coexistence of an infectious disease and defective sewer was, however, negative; the number of cases where defects in joints and waste pipes were met with in such cases was limited. The large majority of diphtheria cases were found in tenement houses. Still, sewer and drain defects were more frequent in private houses containing two or three families than in tenement houses. No special class of people were mainly affected. Diphtheria was alarming in the city of New York before and after the Health Department was established. In answer to my direct question I was told that both diphtheria and typhoid occurred where plumbing was perfect, and were often not found where it was defective. Many typhoid cases were imported from the country in September and October. Dr. Doty related the case, and referred to many similar ones, of a baker who lived in Tenth Avenue with his family over an open earthen and brick sewer into which a privy found its outlet. There was no case of sickness. Physicians always looked for and searched for sewer gas or sewer infection; but the comparative statements of a number of inspectors were negative. Nor could it be said that there were more cases of diphtheria or other infectious fevers near the outlets of sewers or in the immediate proximity of stables.

Dr. William H. Park sends me the following abstract of a paper of his recently read:

"From the reports from a large number of cases of diphtheria it has been shown that bad drainage and bad plumbing have but little noticeable effect upon the spread of diphtheria in New York city. Though we may readily believe that the escape of sewer gas into a room might easily predispose to sore throats, and thus perhaps render persons more susceptible to diphtheria, the Health Department inspectors have not been able to find any cases where the infection with diphtheria came through bad sewer connections.

"The maps which we have in our possession show well how all the tenement districts of New York are infected, and not certain ones over old sewers or streams; also diphtheria is found about as frequently in the garret as in the basement."

Mr. Archibald Montgomery, a very intelligent master plumber of more than twenty years' experience, gives the following as the result of his observation:*

"Plumbers do not lose more time from work on account of sickness than do mechanics in general.

"Emanations from decomposing night soil, etc., may cause vomiting, but not diarrhœa. The effect is only transient.

"Typhoid or other fevers are not more common among plumbers than among other workmen.

"The accidents arising from entering sewers are the result of the presence of either illuminating gas which has leaked into the sewer from the gas mains, or of carbon dioxide formed from the decomposition of sewage.

* Communicated to me by Dr. A. H. Smith, the president of the Climatological Society.

"In places where the level of the sewer is below the general line, carbon dioxide is liable to form in large quantity.

"The inoculation of an abraded surface with sewage often leads to great local swelling, with implication of *lymphatic* glands and general symptoms of 'blood poisoning.'

"There is no discrimination against plumbers by life insurance companies."

I may be finally permitted to add the oral testimony of more than a dozen European medical men, and dozens of Americans. Every one was asked by me: What do you know of the production of a specific germ disease out of, or through, sewer air? The uniform answer was: There is a general vague impression among the public, but I never saw a case, or could prove one.

Some of the conclusions to be drawn from this paper would be as follows:

The atmosphere contains some specific disease germs, both living and dead.

They are frequently found in places which were infected with specific disease.

In sewer air fewer such germs have been found than in the air of houses and schoolrooms.

Moist surfaces—that is, the contents of cesspools and sewers and the walls of sewers—while emitting odors do not give off specific germs, even in a moderate current of wind.

Splashing of the sewer contents may separate some germs and then the air of the sewer may become temporarily infected, but the germ will sink to the ground again.

Choking of the sewer, introduction of hot factory refuse, leaky house drains and absence of traps may be the causes of sewer air ascending or forced back into the houses. But the occurrence of this complication of circumstances is certain to be rare.

Whatever rises from the sewer under these circumstances is offensive and irritating. A number of ailments, inclusive, perhaps, of sore throats, may originate from these causes. But no specific diseases will be generated by them except in the rarest of conditions. For specific germs are destroyed by the process of putrefaction in the sewers, and the worse the odor the less is the danger, particularly from diphtheria.

The causes of the latter disease are very numerous, and the search for the origin of an individual case is often unsuccessful.

Irritation of the throat and naso-pharynx is a frequent source of local catarrh; this creates a resting place for diphtheria germs, which are ubiquitous during an epidemic, and thus an opportunity for diphtheria is furnished.

Of the specific germs, those of typhoid and dysentery appear to be the least subject to destruction by cesspools and sewers. These diseases appear to be sometimes referable to direct exhalation from privies and cesspools. Very few cases, if any, are attributable to sewer air.

A single outlet from a sewer would be dangerous to general health because of the density of odors (not germs)

arising therefrom. Therefore a very thorough and multiple ventilation is required.*

The impossibility or great improbability of specific diseases rising from sewers into our houses, protected as they are, or ought to be, by good drains and efficient traps, must, however, not lull our citizens and authorities into indolence and carelessness. For the general health is suffering from chemical exhalations, and the vitality of cell life and the power of resistance are undermined by them.

STUDY OF

A CASE OF CARCINOMA VENTRICULI, WITH THREE PERFORATIONS IN THE POSTERIOR WALL. HISTORY OF ANTECEDENT GASTRIC ULCER.

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THE interest attached to the case I am about to report, owing to its pathological significance, induced me to keep the most careful record of the course and the various and varying signs and symptoms that developed while under my own personal observation. The patient had passed through the hands of six physicians previous to the time I was called in to treat her. Whether or not the true character of her malady had been recognized I am unable to affirm, but, judging from the courses of treatment that were pursued by her former medical attendants, together with the statements made directly to the patient and her immediate friends, as related to me by them, I should think it was not.

On April 2, 1893, I was requested to see Mrs. M. M., aged thirty-four years, a native of Canada, married.

Family History.—Father, aged seventy-eight years, died of some acute disease, probably pneumonia. Mother, aged fifty-two years, died of a complication of diseases—heart disease, asthma, and pulmonary tuberculosis. Several brothers and sisters died in infancy; others alive and well, excepting a married sister, aged forty years (?), who has chronic valvular disease of the heart. A maternal aunt died of cancer of the stomach.

The patient, a woman of small stature and of spare habit, whose maximum weight during health was one hundred and twelve pounds, was of a neurotic temperament and subject to hysterical convulsions from childhood. She possessed an active mentality, was very intelligent and bright, neat and methodical in habits.

She menstruated at fifteen, was always regular in time, but suffered with dysmenorrhœa, the flow generally lasting seven days. She was married at twenty, but never became pregnant. Had rubeola, pertussis, parotiditis, and varicella when a child, without sequelæ. Twelve years ago she had a severe and prolonged flowing at a regular catamenial period. This hæmorrhage was attributed to general debility (so called), and she never became very rugged afterward. Six years subsequently she had an attack of pneumonia, from which she made a good recovery. On September 7, 1890, she underwent an operation without an anæsthetic for the removal of a uterine polypus, which had been growing for about seven months, and was accompanied by a bloody purulent discharge, which so debili-

tated her that she could scarcely stand on her feet. She dreaded the operation greatly, and frequently had fainting attacks. The shock was quite severe, and she suffered from great nerve prostration and hysteria, which confined her to bed for six weeks. During this period she had frequent attacks of syncope and nervous chills. From that time she dates the onset of her "dyspepsia," and has suffered constantly ever since. It commenced with pain, nausea, and vomiting after food. She soon became unable to retain any solid articles of food; the only nourishment her stomach would tolerate were grapes and broths, on which she subsisted for some weeks, but continued to grow weaker and more anæmic. She was given different digestive ferments without relief and to no purpose. The ingestion of food produced a cardialgia for about three hours, accompanied by acid eructations, pyrosis, nausea, and lastly vomiting, with instant relief. She was constantly annoyed by herpes labialis, and has suffered more or less since with this affection. She stated that her digestion was never very good, and her stomach was always irritable.

She was placed upon a milk diet containing bicarbonate of sodium, which resulted in the production of "bilious attacks" without relief to her other symptoms, and it was discontinued after three weeks' trial.

There existed no history of trauma to the abdomen or indiscretions in diet—in the ingestion of fats, iced drinks, hot tea or coffee, alcohol, or irritants that would injure the gastric mucous membrane. From girlhood she suffered to some extent from borborygmus, but never was troubled with headaches or neuralgias.

She lost thirty pounds in body weight, which was very rapid, and in the summer of 1892 was so weak and anæmic that the slightest emotion would produce attacks of syncope. The cardiac pulsations gave a subjective sensation in the brain, and dyspnœa was so troublesome that she required almost constant fanning. In August of that year she consulted an eminent New York physician and afterward went there for treatment. At this time she was placed upon milk diet with linewater every two hours with the extract of digitalis and Bland's silver-coated pills—the gelatin-coated and sugar-coated she could not tolerate in the stomach. She gained some strength, but frequent vomiting and constant gastric pain continued. She was much troubled by convulsions, which were of daily occurrence. In October of that year she went to New York at the request of her physician to receive his course of treatment. She visited his office daily, driving there from Brooklyn. Lavage was practiced three hours and a half after taking milk, on which she had been fed for seven months, but was discontinued two weeks subsequently, as the washings demonstrated the utter inability of the stomach to digest it. She was then allowed solid food, which seemed for a time better tolerated, although the gastric pain, pyrosis, etc., were much increased. On the second office visit she had an attack of hæmatemesis amounting to about two hundred and fifty cubic centimetres admixed with milk curd. This had the characteristic "coffee-ground" appearance, and persisted to a slight degree for four days afterward, as noticed in the vomitus which regularly occurred subsequent to the ingestion of milk. She was much fatigued from the drive at the time. This was the only time hæmatemesis ever occurred. The vomiting after food was always delayed and was not a regurgitation. The bowels were usually constipated; the urine variable in quantity and appearance. She remained in the city under the personal care of her physician up to December. She gained somewhat in strength and general health, but the gastralgia increased with the change to solid food and was then radiating upward toward her left shoulder and posteriorly under the left scapula. This became so intense and constant that a

* The sidewalk ventilators in New York city are almost always obstructed.

resort to morphine for relief was advised by her physician. It was at first administered in doses of 0.008 *pro re nata*, and increased as tolerance and indications required. This apparently increased the pyrosis, eructations, and intestinal flatus, and often the pains were so severe before controlled by the morphine that convulsions were induced, sometimes lasting as much as an hour. The reason the effects of the morphine were so long delayed in affording relief I conclude to be principally because of the form in which it was given—viz., tablet triturates instead of in solution. Owing to the irritated and diseased condition of the viscus and the difficult absorbing power of the mucous membrane, effects were much longer delayed and suffering increased.

Another prominent feature was the inability on the part of the stomach to tolerate acids in any form; pickles, lemonade, claret, etc., invariably produced the most intense suffering whenever tried. The gastralgia, as described by the patient, occurring after the ingestion of food, became a distinct paroxysm, culminating in emesis with immediate relief. If a breakfast of a piece of stale bread or a roll with a cup of coffee without milk only were taken, she would have no pain. These were generally digested, as lavage three hours subsequently demonstrated. The pain would commence with a subjective sensation of a lump in the stomach moving from left to right, producing a pain of a boring or tearing character, which radiated upward and posteriorly as described. At these times she would assume a leaning-forward posture over a pillow while sitting in bed. The erect sitting position would greatly increase the pain, especially posteriorly. These paroxysms were always accompanied by the other signs and symptoms I have mentioned before. After returning home in December, 1892, she steadily grew weaker, despite the treatment laid down for her, which she consistently followed to the letter, although the lavage gave her great pain and subsequent weakness. She kept in constant communication with her physician, who advised her to persevere with it nevertheless. When well under the sedative but stimulating influence of the morphine she would get around a little, but the most she could do was to walk two hundred yards. She said the dorsal pain first appeared in December, and since that time an increasing amount of morphine has been necessary—at times as much as 0.18 *per diem*. Her mental condition remained unimpaired, although much depressed at times; but when free from suffering she was of the most sanguine and cheerful disposition. She was hopeful to a wonderful degree and willing to acquiesce in anything or to submit to any extreme if but to regain health and freedom from her malady.

When I saw her for the first time she was very weak and unable to permit a thorough examination; only a superficial inquiry, and objective symptoms were noted. Her pulse was 73, full, but very compressible; temperature normal; respirations slightly accelerated; pupils slightly dilated; face, lips, and mucous membranes gave evidence of extreme anæmia. Her skin was clear and very pale, but not cachectic; fingers slightly clubbed; veins prominent and full. The urine, about normal in quantity, deposited a heavy phosphatic sediment on standing. Her teeth were quite loose; the incisors were concaved on the cutting surfaces. The first condition could be accounted for by the convulsions, which had been of late of daily occurrence; there was no specific history of heredity to account for the latter that could be ascertained. The gums were tender and sore as a consequence of long abstinence from solid food for long periods, and she was also much affected by aphthous ulcers and a gingivitis. The tongue—dry, thick, and bunched when protruded, and fissured transversely—was very thickly furred with a dense silvery-white coating that was not removable by scrap-

ing; the papillæ at the base were enlarged and tender, but the margins were not red in appearance.

Physical examination of the chest was negative. The cardiac area of dullness was slightly increased over the right ventricle, but the heart's action was rhythmical and the impulse palpable in the nipple line. No valvular lesions existed. A slight hæmic bruit accompanied the first sound, heard with greatest intensity in the aortic region. The respiratory murmur was beautiful everywhere over the chest. There existed disturbed cutaneous sensibility in hyperæsthetic areas. The physical examination of the stomach was impossible to obtain at my first visit, owing to the extreme tenderness that existed over the entire epigastrium, and also over the dorsum from the first dorsal to the middle of the lumbar vertebræ. The areas were so exquisitely sensitive that the slight pressure of her underclothes produced pain. She told me that this had been increasing of late and was aggravated by lavage, although but a pint of water was employed at a time. I prescribed belladonna ointment, with an equal amount of extract of conium, to be applied over the areas of tenderness twice daily and to discontinue lavage, with the object of relieving her of this condition and to enable me to map out the dimensions of the stomach and otherwise examine her.

There existed no spinal curvature. She suffered frequently from vaso-motor disturbances, hot and cold flashes, and night sweats.

For purposes of observation I allowed the patient to continue on as she had been as to eating, cutting off all medication and lavage. On my second visit, the following day, I found she had partaken for dinner of roast wild duck, roast veal and dumplings, a baked potato, and a cup of tea. Cardialgia immediately followed, and became so severe that she fainted and had a convulsion.

These convulsions were of a hysterio-epileptic type; she never injured her tongue; the spasm was tonic and general throughout; opisthotonus was frequently present; the jaws became set very firmly, which accounted for the condition her teeth were in. The muscles of respiration were likewise involved, suspending breathing for thirty to forty-five seconds.

Yet no cyanosis was ever present, nor did the pupils become dilated. The face was extremely pale during these paroxysms; the pulse was generally regular, but not accelerated although feeble. These convulsions doubtless accounted for the dilatation of the right side of the heart.

A partial relaxation would occur without a return of consciousness, a few deep inspirations spasmodically taken, then she would relapse into one, two, or half a dozen more attacks before complete recovery to sensibility would occur. Excepting for a slight sensation of weakness immediately following and lasting for about an hour, she did not suffer from these post-cibum convulsions.

As she was in agonizing pain on my arrival, I administered two cubic centimetres of chloranodyne in water, with about 0.03 of morphine, by mouth. Eructations became at once profuse, with relief. The cerebral and vaso-motor anæmia gave place to the most intense capillary suffusion in all the peripheral circulation; the conjunctivæ smarted and photophobia followed; the head felt like bursting; the face became flushed and the lips red; the cold extremities of a few moments before rapidly became warm, moist, and pink in color—all of which much alarmed the patient.

This gastric flatulence was so distressing at times that she often was forced to cease eating. It was always the midday meal she suffered from the most; the light breakfast and supper were well borne.

I advised the discontinuance of the usual dinner, to break-

fast on peptonized milk toast, peptonized oysters, or other pre-digested food, and during the day to take a saucerful of pure home-made ice-cream, sweetened with saccharine and flavored to taste, at regular intervals of every two hours. The evening meal to be similar in nature to the breakfast, each of which were to be preceded by a teaspoonful of a gastric sedative, composed of subcarbonate of bismuth, oxalate of cerium, and light carbonate of magnesia, well diluted in cold sterilized water.

Absolute rest in bed was also enjoined; the bowels to be kept regular by an appropriate dose of artificial Carlsbad salts, taken in hot water an hour before breakfast.

I may mention at this point parenthetically that I suspected the presence of an unhealed and chronic gastric ulcer, and for some weeks following the improvement was so marked from the course of treatment pursued that it strengthened this suspicion almost into a diagnosis, but which never was committed to the patient or her friends.

These measures produced prompt relief from all painful symptoms, and the local applications to the epigastrium and back caused a rapid subsidence of the tenderness in those parts.

The ice-cream, however, had to be discontinued after two days' trial, as the stomach could not tolerate it because of formation of fatty acids.

A nutritive enema was given once in twenty-four hours composed of two peptonized eggs, two large teaspoonfuls of beef peptonoids, two cubic centimetres of tincture of nuxvomica, one cubic centimetre of tincture of digitalis, 0.03 of cocaine hydrochlorate (in solution), 1.50 of table salt and peptonized milk to make 240 cubic centimetres (about eight ounces). This was introduced high up into the rectum with a soft rubber rectal tube, the patient lying on the left side with raised hips and flexed legs. It was always preceded by a bowel wash and given at noon. She maintained the position for over half an hour to facilitate retention. She had some peptonized milk prepared to take during the night, and every two hours during the day she took some form of nourishment.

The most marked improvement followed. The patient gained in strength, the pains absolutely disappeared, and she required only 0.02 of morphine daily—a drop from 0.18 within a week—and this merely as a nerve sedative, not as an anodyne. Sleep became natural, and the marked anæmia which appeared so conspicuous with its concomitant symptoms showed much improvement within three weeks despite the fact that the use of the ferruginous pills had been discontinued.

On April 6th—just four days after I had made my first visit—the inunctions over the epigastrium and back were discontinued and I was enabled to palpate and otherwise physically examine the abdomen without eliciting any appreciable tenderness. After making another exploration of the chest to disprove or assure myself of my first conclusions, the examination resulted in confirming them. While pursuing this I discovered the subclavicular glands on the left side slightly enlarged. Those on the right were not made out.

The abdominal muscles on the left of the median line could be reasonably relaxed, but on the right not so much so. In the pyloric region, just below the free border of the ribs, about seven centimetres and a half to the right of the median line and seven centimetres and a half in an upward oblique direction from the umbilicus, an area of induration existed the size of 7.5 × 7.5 cm., which was somewhat tender on pressure, distinct from the right lobe of the liver, smooth and not nodulated. A tumor was not felt on deep inspiration. Percussion elicited muscular spasm and a muffled resonance distinct from the liver dullness above. The patient stated that there had existed a nodular tumor in that region before she went to the city in the previous October, but it had subsequently disap-

peared. The contour of the stomach denoted ectasia, the lower border extending about three centimetres below the umbilicus.

Examination of the pelvic organs was negative. Urine in twenty-four hours, 1,500 c. c. and normal. She had not had a convulsion since April 2d, and no morphine had been required during the previous twenty-four hours. She appeared extremely cheerful on this day. She had massage for fifteen minutes twice a day, which was followed by refreshing sleep. At this time she experienced amelioration of all the distressing symptoms before complained of.

On April 8th about ninety cubic centimetres of gastric contents were procured by aspiration through a soft-rubber stomach tube an hour after ingestion of ice-cream and eight hours after peptonized milk toast. Some unmixed curds were vomited around the tube, together with œsophageal mucus. The aspirate was brownish in appearance, mixed with curds, with considerable mucus; also a slight indication of blood together with several small particles of granulation tissue. Odor emitted indicated the presence of fatty and acetic acids.

Filtrate was of a light brownish-yellow and translucent. Reaction intensely acid; response to Uffelmann's test for lactic and fatty acids, but *not* to Boas's for HCl, although repeated trials were made and the test solution examined for delicacy.

Uranalysis.—Amount in twenty-four hours was 900 c. c.; color, light yellow; specific gravity, 1.011; reaction, neutral; sediment loaded with phosphates; no sugar; no albumin; urea, six grammes, total. Patient's condition was comfortable and improving.

April 12th.—Second test of gastric contents procured as before one hour after Ewald's test breakfast. The tube passed fifty-one centimetres (twenty inches). The aspirate in appearance was dark brown, consisting of considerable mucus, bread crumbs granular and undigested, and another particle of granulation tissue. The sour odor and that of fatty acids was absent. Filtrate same color as last. Reaction, acid; response to lactic-acid test but *not* to that for HCl. Pepsin test: two grammes of hard-boiled egg albumin in thirty cubic centimetres of filtered gastric juice, maintained at a temperature of 115° F. for three and a half hours, remained unchanged excepting slightly discolored.

After the addition of 2 gtt. of HCl liquefaction progressed. Glycerin and H₂O₂, each four cubic centimetres, were given in one hundred and twenty cubic centimetres of water three times a day.

On April 14th the patient was still improving. She had been completely free from pain and convulsions. Sleeping well throughout the nights without morphine. She complains of hunger at times.

Second Uranalysis.—Amount in twenty-four hours, 900 c. c.; color, light yellow; reaction, neutral; specific gravity, 1.015; odor, urinous; sediment, phosphatic; no albumin; no sugar; urea, nine grammes, total—an increase of fifty per cent. since commencement of treatment uninfluenced by eliminatives and confined to bed.

April 22d.—She is still retained in bed, with massage and on the same diet, which agrees with her, and of which she has not tired. She maintains a cheerful frame of mind and is in good spirits. Twice each day (weather permitting) she has an airing for an hour by opening widely two windows in her room; having hot-water bottles placed in bed, her head properly protected, and an extra amount of clothes over her and every precaution taken from taking cold. These "cold-air baths" she thoroughly enjoyed. It was very surprising to note the improvement manifested in her general condition—anæmia lessened (without iron), daily movement of bowels, increase in urinary excretion, quiet, reposeful sleep without anodynes or

hypnotics, and the increased amount of nourishment taken without the slightest distress.

In the evening I was hastily summoned and found her suffering from intestinal colic—an accumulation of gas in the cæcum—an old trouble from which she had had previous attacks. Quite a distinct localized tumor presented in the right hypogastrium. She became hysterical and soon lapsed into a convulsion—the first she had had since commencing treatment. Although morphine hypodermically was administered, relief was not afforded until she came under the effects of bromide of sodium and chloral given *per rectum*.

25th.—Third examination of gastric contents made one hour after Ewald's test meal: Amount, 70 c. c.; clear in appearance; mixed with undigested bread crumbs; *slight* amount of mucus; no granulation tissue present; reaction strongly acid; fatty acids present, but *absence of HCl*.

Urine.—Amount for twenty-four hours, 1,620 c. c. On the following day she vomited and purged, the effects of becoming nervously excited, and partly because the food was probably not quite rightly prepared, as the vomitus was curdy and very sour.

May 2d.—As the patient was at this time craving solid food, and had been free from gastric distress for a month and her general condition greatly improved, the nutritive enema given at noon was discontinued, and more albuminoids allowed in the form of Mosquera's beef foods prepared by Parke, Davis, & Co. The gastric sedative was also omitted, although the glycerin and peroxide of hydrogen were continued. At this time Bland's pills in 0.18 doses P. C. and as an A. C. pill of argent. nit., 0.015 administered. Also *mistura asafœtidæ*, 60 c. c. *per rectum*, was given to control the hysterical element. The third urinalysis showed: Amount in twenty-four hours, 1,800 c. c.; color, pale-yellow; reaction, neutral; odor, urinous; sediment, phosphatic; no albumin; no sugar; urea, twenty grammes, total.

Her condition continued to improve for some weeks, and the patient and her friends entertained the hope that her recovery would eventually follow.

She was allowed to get up gradually, and by the middle of May had gained in strength sufficiently to move round the house and walk a little in her garden. She manifested considerable interest in her flowers, and often remained for hours sitting in a protected place reading or otherwise enjoying herself in the open air. She partook regularly of nourishment every two hours during the day and once or twice at night. This continued until June 1st.

From my study and observation of the case, coupled with previous clinical history, the symptom group—the most important yet contradictory evidences, the absence of cachexia and general improvement as favoring the diagnosis of gastric ulcer, against the persistent absence of HCl in gastric contents, the accepted (pathognomonic) sign of malignancy—I considered the weight of evidence in favor of gastric ulcer. Furthermore, the absence of HCl could be assumed on the grounds that she was addicted to morphine, and also it is often absent in chronic gastritis.

The lack of HCl in subjects addicted to the opium habit is well known, and is accounted for by the theory of inhibitory influence which the persistent use of the drug for a long time has on the sensibility of the gastric sensitive nerves. The food bolus in the stomach fails to excite HCl secretion and acts as an irritant to the diseased portion of the gastric mucous membrane, exciting hypermotility and a subjective distress in the organ with general

nervous disturbance. Moreover, an alkaline medium favors the condition for fermentation of unprepared and non-asepticised food, part of which is propelled into the intestinal tract, there to be further favored in decomposition. Gases and ptomaines, being formed in both stomach and intestines, give rise to eructations and borborygmus, and, becoming absorbed, impoverish the blood, induce headaches, vertigo, etc., robbing the nutritive system of that pabulum upon which the well-being of the individual depends—assimilation is perverted and nutrition lowered.

The suspected ulcer was thought to be situated in the posterior wall, because of the position the patient would assume during the paroxysm of gastralgia; also from the dorsal radiation of the pain and existence of tenderness there. Moreover, when in the dorsal decubitus, with the stomach empty, she described a subjective sensation of oppression perceptible only when in this posture.

The rationale of treatment was based upon what was perceived to be the indications in the case—to allow only such foods as the stomach would tolerate in character and quantities. I early ascertained the inability of the crippled organ to perform gastric digestion owing to the lack of HCl—the natural antiseptic of the stomach; the consequent formation of the products of fermentation in the viscus acting as chemical irritants gave rise to the pain and other symptoms. Therefore the second indication at once became clear that of rendering the contents of the stomach non-fermentable. Predigested and aseptic foods fulfilled in a theoretical sense the indications present. The maintenance of the antiseptic condition by suitable and non-irritating agents, as glycerin and H_2O_2 , gave immunity from pain and lessened gastric peristole. For two months she continued to show marked and progressive improvement, when one day early in July her most pain-taking, intelligent, and very efficient nurse—a non-professional—who became an adept in the preparation of her foods, suddenly left her. This unexpected event produced in her a severe nervous shock from which, together with subsequent circumstances, she never recovered. The care which she subsequently received was not calculated to perpetuate the favorable change in her condition, and she soon relapsed into the hopeless state which the real disease, that was so well advanced, doomed her. This circumstance was but a coincidence, yet it had its effect through the nervous system, already so much disturbed. Her foods were not as carefully prepared and the old symptoms of eructations, pyrosis, vomiting, and gastralgia all quickly returned, bringing in their wake the nervous phenomena which seemed at this time intensified because of the privation of the accustomed effects of morphine on the system. It was necessary to resort to its employment again to control the pain and overcome the depression. An effort was made to substitute in a measure chloral and sodium bromide, with *mistura asafœtida* given *per rectum* at night; but this was not followed by happy effects and had to be abandoned. Previous to the return of these discouraging symptoms the induration in the pyloric region had nearly become imperceptible, but on July 5th the patient drew my attention to a firm and slightly nodular mass about ten centimetres by four centimetres in size, of an oblong shape, which could be felt at the right margin of the median line below the xiphoid cartilage and crossing upward in an oblique direction to the left. The sensation it conveyed to the examining hand was of cicatricial-tissue formation which was firmly immovable. Emesis was frequent and variable in appearance and characteristics—the first vomited after taking nourishment would be the food practically unchanged excepting for the odor of fermenta-

tion; that which would subsequently be evacuated would be entirely different and more decomposed, or remains of a previous day's meal; this feature at first was suggestive of one of two conditions being present—either a sacculation or stenosis.

The Fourth Urinalysis.—Amount for twenty-four hours, 900 c. c.; color, muddy yellow; reaction, acid; odor, aromatic; no sediment; no sugar; no albumin; specific gravity, 1.014; urea, 10.50 grammes, total.

July 10th.—Patient has been mostly confined to her bed for about a week with an aggravation of all her symptoms and daily losing strength.

Edema in lower extremities and hands. The kidneys are acting badly. Urine, highly colored and very concentrated, is passed with difficulty and at long intervals. Stomach more rebellious, and vomitus often contains much mucus and has a "coffee-ground" appearance.

The skin is now assuming a characteristic yellow cachexia, particularly that of the face and arms. The sclerotics slightly icteric, and the face is emaciating rapidly, giving the patient a cadaveric appearance.

August 1st.—The stomach is enormously distended and pendulous—unmistakable evidence of partial or complete stenosis of the pyloric orifice. The hard nodular mass before referred to can now be defined as a distinct tumor lying more in the median line. General anasarca exists in all areolar tissues excepting the face; the lower extremities enormously and painfully distended, the labia so much so as to require the use of the catheter frequently. The urine highly acid and concentrated; odor rank; greenish iridescent in color response to the bile test; slightly albuminous. Heart's action more feeble and intermitting, excepting when under the effects of morphine, to which small amounts of atropine have been added. Emesis and convulsions are frequent, and attempts at deglutition induce spasm of the laryngeal muscles. She also has frequent attacks of dyspnoea and is unable to lie down, maintaining a semi-recumbent position, and being supported in bed by pillows. Stimulants and increased doses of morphine, the latter hypodermically, are freely given, as all nourishment by the mouth is soon rejected. One or two nutritive enemata are administered during the twenty-four hours, and are well retained. Slight delirium exists at times and insomnia troublesome. There is marked evidence of progressive exhaustion. A change of position will produce emesis.

The thick silvery coating of the tongue with its entire epithelium has desquamated, leaving a raw and painfully sensitive mucous membrane; there is also some glossitis posteriorly.

17th.—The patient has been in a dying condition for over two weeks. Life is frequently threatened from apnoea. Two cubic centimetres of Magendie's solution with atropine sulphate, 0.0065+, are required hypodermically for relief *pro re nata*. She had a remission of the convulsions to-day which she has been free from for ten days. Pyrosis occurs whenever she attempts to recline. Sleeps very little, and it is much disturbed. Unable to retain nourishment by rectum. It is now necessary, whenever the hypodermic needle is used, to first bring the patient under the primary effects of anaesthesia (equal parts of chloroform and ether with one drop of amyl nitrite to the ounce) to control convulsions, into which she invariably lapses from the least disturbance. The anaesthetic is also used by the nurses to relieve orthopnoea when necessary. From this time until the date of her death, August 31st, the pain, vomiting, fainting, convulsions, apnoea, anasarca, a bed-sore on the coccyx (which had developed despite the greatest care, owing to her inability to lie in the recumbent position for over a month), retention of urine, inability to take nourishment or retain it, and other symptoms of subjective suffering, became so

intensified that more frequent and increased amounts of the anodynes were daily and often hourly required in humane efforts to lessen her terrible sufferings until death would kindly relieve her forever. For several days before her death she received hypodermically eight cubic centimetres of Magendie's solution of morphine (about 0.24 grammes) combined with sulphate of atropine (0.003) once and sometimes twice daily.

Pathological Report.—Autopsy made three hours after death on the body of a poorly nourished and much emaciated female aged about thirty-five years.

Lower extremities enormously oedematous; skin waxy white; face and arms of a yellow cachectic appearance; mucous membranes pale; teeth loose; the incisors long and concaved on the edges.

On section of the abdomen, the subcutaneous fat was much shriveled and very scant; the muscles soft and pale; cellular tissue below the umbilicus oedematous. Peritoneal cavity contained several litres of light yellow ascitic fluid.

Diaphragm at fourth rib on right side, at the fifth on the left. Right and left lobes of the liver adherent to the lesser curvature of the stomach.

Upon separating the adhesions, which were old, a perforation of the stomach the size of a twenty-five-cent piece was found about six centimetres from the pylorus. This ulcer was surrounded by firm adhesions and a considerable amount of broken-down tissue and puruloid matter. This was in contact with the left lobe of the liver, whose concave surface was adherent, to quite an extent, to the posterior border of the stomach.

The stomach was adherent to the anterior abdominal wall and to all adjacent structures—partly to the diaphragm, the transverse colon, and also to the spleen, matting down firmly the lesser omentum, through which two other perforations extended. The adhesions were dense and tenacious between the stomach wall and the liver, into which the perforations already mentioned existed. Around this ulcer extended an area of indurated fibrous tissue in the liver substances two centimetres deep, which was white in appearance.

Of the two other perforations, one was limited by the gastro-hepatic omentum which was agglutinated to the posterior wall inclosing a cyst or pocket filled with similar puruloid and necrotic material. The other ulcer extended into the capsule of the pancreas; the adhesions and infiltration of the neoplasm included the hepatic duct, the hepatic blood-vessels, and solar plexus, and extended through tissues that included the apex of the right kidney by firm bands of connective tissue and involving the descending portion of the duodenum below the opening of the ductus communis choledochus. Part of the parenchyma of the pancreas was also infiltrated, together with the under surface of the right lobe of the liver, lobus Spigelii, and a portion of the gall bladder. The greatest thickening was present in the posterior wall of the stomach near the pylorus where the perforations existed. Whether these were unhealed gastric ulcers or produced by thrombosis or malignant ulceration can not be definitely stated.

The stomach, which was greatly dilated, extended some five centimetres below the umbilicus and was distended to its full est capacity. The contents were divided into strata, the upper of which was of a grumous greenish-yellow color, mixed with undigested food and curds, and emitted strong odors of fermentation. The middle portion was clearer. The lower portion, in contact with the diseased structure, was brownish ("coffee-ground"), thick, and intermixed with tenacious mucus and necrotic tissue. The amount in all was about two thousand cubic centimetres.

The external appearance of the stomach was mottled, green-

ish in patches, and resembled advanced post-mortem changes, although but three hours after death.

The pylorus was a hard mass of new growth with complete stenosis of the orifice, nodulated and displaced into the median line by the weight of the distended stomach. The spleen was small, pale in color, granular, and friable.

The pancreas was hard and in intimate connection with the diseased pylorus by adhesions.

The mesenteric glands were much enlarged and numerous.

The left kidney was small, white, and hard; the cortex much narrowed, and scarcely distinguishable by color from the pyramids. The capsule was adherent in places.

The right kidney was in a similar condition, but adherent by fibrous bands at the apex, and was infiltrated to some extent and very hard and white in color at that point.

The liver, though smaller in size than normal, was very heavy and hard. Its color was a greenish gray, and it had a granular appearance on section. The bile distended the ducts throughout the entire substance, which was very oedematous.

The pelvic organs were normal.

The lungs were entirely free in the pleural cavities; there was slight hypostatic congestion at their bases posteriorly. They were in excellent condition, and crepitated on pressure. A small amount of serum was in each pleural cavity. About thirty cubic centimetres of light straw-colored fluid were contained in the pericardial sac.

The heart was small in size; the valves competent and patent; two small fibrous vegetations were found on the mitral leaflets. No evidences of endocarditis or atheroma.

The myocardium was pale and soft, and the right ventricle much dilated and the wall thinned.

In conclusion, it seems to me, from a careful clinical study of this case, it is a natural sequence to conclude that there existed previous to the development of a malignant neoplasm a peptic ulcer or ulcers of the stomach, and that such were located in the posterior wall near the pylorus.

To tabulate the signs and symptoms in review, we have the following:

POSITIVE SIGNS OF ULCER.

1. Sex: Predisposing factor; ulcer occurs mostly in females (cancer in males).
2. Age: Generally in the young (seldom in advanced life, like cancer).
3. Clinical history: (a) Anæmic and neurotic female. (b) Acid eructations relieved by alkalies. (c) Pain from ingestion of food relieved by vomiting. (d) The onset sudden, following shock from surgical operation.
4. Nervous theory of causation of gastric ulcer, as held by Stockton* and others. Coexisting herpes labialis.
5. Direction of pain: upward, toward the left shoulder.
6. Remissions of disease.
7. The digestion of starches, as demonstrated by lavage, when first practiced.

NEGATIVE SIGNS OF CANCER.

(The difficulties that presented themselves in the symptom group obscured the actual diagnosis on which the prognosis was so dependent. The two most important signs of malignancy seemed at variance with each other.)

1. Von den Velden's sign of absence of HCl, but could be accounted for in (a) chronic opium *habitué*, (b) an existing chronic gastritis, (c) also "as a nervous manifestation of hysteria."*

2. Rommelaere's sign of malignancy—viz., diminished excretion of urea—seemed at first to indicate cancer, as only six grammes obtained from urine of twenty-four hours when first examined; but the patient was on (a) restricted diet, (b) ingesting scarcely any albuminoids, (c) and not performing any physical exertion. Later the amount of urea amounted to twenty grammes in twenty-four hours.

3. Marked improvement as result of treatment.

4. Entire absence of cachexia until within a month of dissolution.

5. Duration of disease *three years*.

6. The absence of tumor.

POSITIVE SIGNS OF MALIGNANCY.

1. Absence of HCl in gastric contents.
2. Diminution of urea.
3. Granulation tissue present in stomach washings.
4. History of characteristic hæmatemesis.
5. History of presence of tumor (which reappeared or became palpable subsequently).
6. State of general nutrition that was on a parallel to the anæmia present.

7. The suspected enlargement of lymph glands.

8. Marked gastrectasis.

In the later course of the disease developed—

(a) Characteristic cachexia.

(b) Anasarca.

(c) Extreme emaciation.

The development of cancer in the site of an antecedent gastric ulcer has been verified in the clinical experience of the past, and it seems more than probable that this is what occurred in the case related. Just when the first condition ceased and the second supervened would not be marked by any symptoms of demarcation. An unhealed chronic gastric ulcer terminating life by malignancy would be quite in the line of expectancy, owing to the fact that the conditions most favorable for its production would exist. The constant irritation in diseased epithelium of the stomach would most certainly conduce to such a process of proliferation.

Haüser† discovered atypical growths of epithelium in the scars of gastric ulcers.

The Diagnosis of Cerebellar Tumors.—Ashby (*Practitioner*, December, 1893) thus sums up his article on this subject:

The symptoms of a tumor of one of the lateral lobes of the cerebellum are those of a gradually increasing hydrocephalus, with the addition of optic neuritis and vomiting. It is only occasionally possible to say on which side the tumor is situated, and then only by means of the pain, which may be referred to the actual spot. The so-called ataxic gait is due to paresis or semi-rigidity of the limbs. When a tumor occupies the middle lobe we should expect symptoms of direct pressure on the floor of the fourth ventricle.

* *Ætiology of Gastric Ulcer.* By Charles G. Stockton, M. D. *Medical News*, January 14, 1893.

* Osler. *Practice of Medicine*, p. 361.

† As quoted by Strümpell.

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THE EARLY DIAGNOSIS AND TREATMENT OF WHOOPING-COUGH.

THE *Journal des praticiens* for July 14th publishes an article by M. Vignol in which he remarked that the diagnosis of whooping-cough in the catarrhal stage may be so nice a matter that, during an epidemic—of influenza, for example—the appearance of the first fit of coughing is sometimes a surprise to the physician and to the family. There was no doubt that it is advantageous to recognize the disease even in its period of invasion, and to seclude the patient at once. He should be carefully watched also, for, although broncho-pneumonia is rare at this stage, its appearance is not impossible.

No special signs exist, says M. Vignol, whereby one may be guided in the early diagnosis of this disease. The attack of stridulous laryngitis which sometimes precedes whooping-cough is rather a rare sign, and seems to be peculiar to the patient rather than to the disease itself. Grinding of the teeth is a common symptom in nervous children, and constant and repeated sneezing is a significant symptom too often neglected by the parents. Redness of the conjunctiva is to be observed in catarrhal cases. Photophobia with dilatation of the pupils is an exceptional symptom; it may be controlled, but not much benefit is to be derived from so doing.

The only guide, then, to a diagnosis of the disease lies in the characters of the cough itself, which are somewhat subtle, but rarely absent. After a catarrhal period of two or three days' duration, a peculiar cough sets in which is not convulsive, but in which the nervous element can be detected. This cough is sonorous and vibrating; its tone is loud and piercing, and it is more frequent at night, sometimes being exclusively nocturnal; in other cases it persists day and night. Notwithstanding the frequency of this cough, there is no expectoration; it is purely a nervous cough, and it lasts from a week to two or three weeks, sometimes longer, after which time whooping-cough itself sets in and with it the characteristic expectoration. Whether this is taken in the beginning or during the convulsive stage, it can not be checked; all that can be done is to alleviate the symptoms. Whooping-cough is not dangerous in itself, but it is disagreeable and enervating to the patient; the danger lies in pulmonary complications, the prognosis of which depends less on the primary intensity of the disease than on the patient's general condition. Insomnia and digestive troubles, especially vomiting, are important symptoms, as they are manifestations of a general nervous erethism.

The rational treatment should tend to the amelioration of

the general condition, and not particularly to the hyperæsthesia of the larynx, the pharynx, or the nose. Antispasmodics should form the basis of the treatment, and one of the most efficacious, that which Trousseau qualified as an heroic medicament, was belladonna. The simplest preparation, and the one most easily taken, is the tincture, alone or combined with extract of aconite in the following proportion: Tincture of belladonna, twenty parts; extract of aconite root, ten parts. For children between two and three years old the dose is ten drops three times a day before eating, to begin with, and this may be increased to fifty or sixty drops a day. Belladonna has a slight drawback, that of rendering the expectoration less fluid and more difficult of expulsion. An emetic should be given every three or four days. After fifteen days of this treatment, it is prudent to suspend the use of belladonna for a while, and its best substitute is potassium bromide, less active, it is true, but sufficient for an interval of some days. The following formula is well borne by children: Potassium bromide, ninety grains; syrup, two ounces; extract of star-anise, thirty grains. For children between two and three years old three teaspoonfuls a day may be given.

In addition to the internal treatment, says M. Vignol, it is well to use one of the following antiseptics: Put a ball of camphorated naphthalene under the child's pillow; or before it is put to bed the bedclothes should be placed in a barrel or on a line and sulphur burned under them; or saturate a napkin with a concentrated alcoholic solution of carbolic acid and put it under the bed every night.

By this simple treatment the appetite may be kept up, the vomiting diminished, the asphyctic stage of laryngeal convulsions alleviated, and the fits of coughing reduced in number. As a consequence, nutrition remains good and the child preserves its strength.

SEPTIC OSTEITIS IN CHILDHOOD.

A LECTURE on this subject was recently delivered by Mr. Edmund Owen at the London Hospital for Sick Children, and is reported in the *Lancet* for May 26th. Mr. Owen believes that a diagnosis of rheumatism is sometimes erroneously made when the condition present is in fact osteitis due to some septic infection. This may occur without a history of local injury, but usually some illness has seriously disturbed the patient's nutrition. In such circumstances all the tissues of the body are rendered uncommonly susceptible to infection, and it is not strange that the delicate new bone at the end of the diaphysis should suffer. Any septic micro-organisms which have gained entrance into the body might readily implant themselves in this region of slight resistance. Here they would undergo prolific cultivation, secreting their ptomaines to poison the blood and disturb the nervous system. Two cases were presented illustrating this condition. In neither case could a satisfactory cause be discovered. Sometimes the disease is acute and fulminating, and carries the child off before a diagnosis has fairly been made. In others, as in the cases mentioned,

it is slow and simulates articular rheumatism in many respects. Unlike rheumatism, however, the heat, the swelling, the pain, and the tenderness, although close to the articular area, do not involve it. The tenderness is limited to the region of the bone close below the junction cartilage, and at this point there is a definite thickening. In articular rheumatism the swelling, the fullness, and the redness are confined to the area of the synovial membrane, and there is no thickening about the bone. The results of treatment also aid in diagnosis. The relief of the symptoms of acute rheumatism is, as a rule, so prompt under the use of salicylic acid that an increase in the severity of the articular signs, or even a lack of any improvement after a few days, should arouse suspicion and call for a more thorough and careful investigation. The diagnosis should be made as promptly as possible, for error and delay lead to lamentable results. The treatment is essentially surgical. Incision should not be delayed until the presence of pus is demonstrated. Delay allows the septic inflammation to make irremediable havoc, so that the sooner the area of disease is attacked and cleared out the better. To wait for fluctuation is to give the staphylococci and other micro-organisms full opportunity to do their worst. The incision should be through the periosteum and, if any pus is here confined, a free opening should be made. The diaphysis should be trephined to give free exit to all septic matter pent up within the bone.

MINOR PARAGRAPHS.

LITERATURE THAT MAY BE CONTRA BONOS MORES.

WE have received from a Munich publishing house a circular advertising the third edition of a book entitled *Die Mittel zur Verhütung der Conception. Ein neues Mittel*. The circular announces also a new work, by the same author, called *Eine sichere Verhütung syphilitischer Ansteckung*. It is to be hoped that these books are confined strictly to the medical profession, for the matters with which they deal—how to prevent conception and how to avoid syphilitic infection—are already sufficiently inquired into by certain classes in the community.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending July 31, 1894:

DISEASES.	Week ending July 24.		Week ending July 31.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	14	1	25	9
Scarlet fever.....	40	4	46	6
Cerebro-spinal meningitis...	0	0	3	3
Measles.....	37	5	39	4
Diphtheria.....	178	38	161	45
Small-pox.....	4	2	4	0
Tuberculosis.....	273	50	104	76

The British Medical Association.—In the programme of the Section in Laryngology and Otology Dr. Joseph O'Dwyer and Dr. William P. Northrup, of New York, were announced

as to take part in a discussion of The Treatment of Acute and Chronic Laryngeal Stenosis. We learn that Dr. Northrup was also to present a paper on The Diagnosis and Treatment of Diphtheria, and to demonstrate an apparatus for forcible artificial respiration, a modification of the one devised by Dr. George C. Fell, of Buffalo.

Processions and the Berlin Physicians.—The *Union médicale* says that the police authorities of Berlin have decided to follow the example of their New York brethren, and give each practicing physician of the city a card securing him the right of way through the streets while engaged in visiting patients.

Changes of Address.—Dr. Edwin Geer (Baltimore), to No. 1533 Bolton Street; Dr. W. J. George (Johnstown, Pa.), to No. 215 Horner Street.

Army Intelligence.—Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from July 22 to July 28, 1894:

By direction of the Secretary of War, the order assigning McCREERY, GEORGE, Captain and Assistant Surgeon, to duty at Fort Washakie, Wyoming, is revoked.

By direction of the Secretary of War, the order assigning PRICE, CURTIS E., Major and Surgeon, to duty at Fort Custer, Montana, is revoked, and he is granted leave of absence for one month, to take effect upon being relieved from duty at Fort Porter, New York.

Naval Intelligence.—Official List of Changes in the Medical Corps of the United States Navy for the week ending July 28, 1894:

KIDDER, B. H., Medical Inspector. Ordered as member of the Board of Medical Examiners, Navy Department.

HERNDON, C. G., Surgeon. Detached from the Board of Medical Examiners, Navy Department.

BRADLEY, G. P., Surgeon. Detached from the Receiving-ship Wabash and ordered to the Navy Yard, Mare Island, California.

STONE, E. P., Passed Assistant Surgeon. Detached from the Marine Recruiting Rendezvous, Boston, and ordered to the Wabash.

STEPHENSON, F. B., Surgeon. Ordered to the Marine Recruiting Rendezvous, Boston, Mass.

Obituaries.

DR. JOHN B. ISHAM, OF PASADENA, CALIFORNIA.

DR. ISHAM died on July 19th, after an operation upon the nose the exact nature of which is not known to us. He was well known in New York, where he was an esteemed practitioner for about fifteen years. He was graduated in the class of 1869 at Yale College, and took his degree in medicine at Bellevue Hospital Medical College in 1873. Subsequently he was an interne on the surgical side at Bellevue Hospital, and further pursued his medical studies in Germany. For several years he was associated with the late Dr. James R. Wood, and was one of the corps of instructors who assisted him with the large classes of students which that distinguished surgeon constantly had. For several years he was also an inspector upon the board of health, being engaged at the same time in general practice.

Failing health compelled him to leave New York in 1889. He went first to Manitou Springs, Colorado, and thence to Colo-

rado Springs, whence, finding that the climate was still unsuited to his physical condition, he pushed onward to the Pacific coast, and finally settled, between two and three years ago, at Pasadena, where he was engaged in practice at the time of his death.

His was a most beautiful character and disposition. Gifted intellectually far beyond the majority of his medical brethren, sincere, ingenuous, thorough in his acquisitions, he had withal a shyness and reserve that shrank from the fierce struggles of city life, which put many a man in every way inferior to him into a position of prominence that he would have adorned. But, whatever failure on the part of others there may or may not have been to recognize his merit and great worth, it was not from his lips or conduct that murmur or discontent was apparent; he had the rare moral heroism of suffering in silence, leaving only inferences for those who loved and admired him and knew his sterling worth. What a pity that in a profession in which intellect counts for so much, in which, too, sentiment and emotion are so cultivated in the relations sustained to the sick and injured, there is so often a tendency to the manifestation of the same selfishness, envy, and littleness which we see and condemn as the "ways of the world"! What Dr. Isham's relations to the profession were in his California home we do not know. His letters occasionally referred in a modest manner to some operation performed, for surgery was the work of preference with him, but he was far less likely to speak of his own affairs than of the work and the achievements of others. Of his Christian faith and life those who knew him well will bear willing testimony, and those whom he honored with his friendship, though if they think of him with a sigh because the friendship is interrupted, will yet be conscious of an odor and fragrance as of choice flowers as often as his memory is recalled.

Letters to the Editor.

ON THE ALLEGED SPECIAL LIABILITY OF BENIGN LARYNGEAL GROWTHS TO UNDERGO MALIGNANT DEGENERATION AFTER INTRA-LARYNGEAL OPERATIONS.

LONDON, July 20, 1894.

To the Editor of the *New York Medical Journal*:

SIR: The authors of the communication which under this heading appeared in the *New York Medical Journal* of June 2d attempt by a side blast to discredit my contribution to Burnett's *System of Diseases of the Ear, Nose, and Throat* in the eyes of my American confrères, and, unpleasant as they declare the task to be, there is such strong evidence in the contribution of primary malignancy as to preclude the idea that their intentions toward me could have been at any moment mistaken for benign.

Writing so strenuously in the interests of fair play, it will hardly be credited that the authors conceived it consistent with their notions of honorable fighting to allow me to see their article only by a chance visit to a public library some days after its arrival in England.

As regards Dr. Semon, when he brought his grievances before the Pathological Society of London, the strong personal element with which his communication was charged was rigorously excluded from consideration by the president at the time and by all the journals which reported the case on which his incubrations against me were based. Hence his appeal to the hospitality of your columns.

I shall not deign to answer a word of what Dr. Semon may have to say with regard to the late Sir Morell Mackenzie, for whom he has now the presumption to take up the cudgels. This may suit his present position, but I should be quite willing to allow the whole conduct of each of us—literary and personal—toward that great man, to whom we are both mutually indebted for much of any success we may have achieved—although only one of us allows it—to be submitted to the arbitration of the whole body of American laryngologists, as represented by their association, with a very sure conviction on my own part to which of the two the verdict of loyalty and gratitude would be accorded.

Out of no disrespect for the many physicians of the United States whom I may count as my friends, I must decline to make any further rejoinder beyond giving them the assurance that on this subject as on any other on which I may have had a difference of opinion, I have endeavored to act with perfect fairness to my opponents. Wherever I have used inverted commas I have never quoted otherwise than accurately, but it is quite possible that in abstracting a case I may have changed a word here and there. If I have done so, it has never been with the intention of changing the meaning of any writer to whom I have referred. Such paltry matters are unworthy transatlantic publication—at any rate, I can be no party to a correspondence on them under the obvious disadvantages attendant thereon, and I promise that you will not have your space further trampled on by me to so fruitless a purpose.

LENNOX BROWNE.

Proceedings of Societies.

AMERICAN PÆDIATRIC SOCIETY.

Sixth Annual Meeting, held in Washington on Tuesday, Wednesday, Thursday, and Friday, May 29, 30, and 31, and June 1, 1894.

The Vice-president, Dr. F. FORCHHEIMER, of Cincinnati, in the Chair.

The Influence of Venous Congestion on the Spinal Reflex Centers.—Dr. B. K. RACHFORD, of Newport, Kentucky, in a paper thus entitled, said he had in a previous paper called attention to the fact that the chronic diseases which resulted in the greatest reduction in the nutritive elements of the blood were among the most important ætiological factors of the neuroses of childhood. The question was, Was anæmia alone responsible for the irritable condition of the nervous centers? Was it simply a malnutrition of the centers, or was there some other blood change besides the anæmia which was in part responsible for the supersensitiveness and irritability of the nervous centers? The three important changes in the blood to be considered in this connection were: 1. Toxines in the blood. 2. Anæmia, acute and chronic. 3. Venous congestion, acute and chronic. These were not separate ætiological conditions, but were part of a complex blood state which had a great deal to do with producing the excitability that was found associated with the chronic anæmias of childhood. He would call attention to the fact that toxic products could produce nervous symptoms, and therefore might be ætiologically important in the neuroses of childhood. It must be remembered that there were other toxines in the blood than those of bacteriological origin. Paroxanthine, a poisonous leucomaine of the uric-acid group, was an ætiological factor in a group of nervous symptoms which had heretofore

been associated with uric acid. It was necessary to bear in mind that certain leucomaines, as well as bacterial toxins, were to be classed among the poisons which were to be found formed in the body, and which might act as aetiological factors in the production of nervous symptoms. The best way to study the influence of simple anæmia on the nervous centers in an animal was by repeated bleedings, or by starvation, or by the two methods combined. By starving and bleeding a number of rabbits into a condition of profound malnutrition, he had been led to suspect that the blood changes found in scrofula, malarial disease, rheumatism, and other blood diseases, might not be entirely the result of anæmia, but that the blood might also contain effete and toxic products which might assist in keeping the nervous system in a state of chronic irritability. This view had been confirmed by experiments in ligating the vena cava in rabbits. He had also ligated the abdominal vena cava of a large, full-grown rabbit, and had found that a most exaggerated reflex irritability of the spinal cord was thus produced, but that this reflex irritability did not begin until the end of the second week after the operation, and that from this period on for about six or eight weeks it continued to increase. He would not lay too much stress on this as indicating morbid excitability of the spinal cord, as it might have been due to the changed condition of the muscles and nerves and cells and not to the condition of the spinal cord. The same results had been obtained by ligation of the abdominal aorta in a rabbit. From these experiments the inference seemed clear that the resulting nerve excitability was not, at least entirely, dependent on the malnutrition of the parts involved. The reflex phenomena produced by starvation were very slight indeed compared with those produced by venous congestion or arterial anæmia. It seemed fair to conclude that venous congestion and arterial anæmia did not act solely by causing malnutrition, but that there were additional factors, and these factors might be found in the effete and poisonous products resulting from metabolism which were kept in contact with the nervous system instead of being eliminated. It was not improbable also that we might find here an explanation of the manner in which endocarditis and pericarditis acted in producing chorea and other nervous affections in children, by retarding the capillary circulation in the nerve centers.

Dr. T. M. RORCH, of Boston, discussing the paper from a clinical standpoint, said that he was thoroughly in harmony with the views expressed. He thought that almost every clinician must have noticed the relation between a feeble circulation and nervous disorder in children. The statement made regarding the influence of endocarditis in chorea had been to him an especially interesting one.

Dr. J. HENRY FRUITNIGHT, of New York, said that the important point that the phenomena of malnutrition were not the direct result of the anæmia, but rather of a toxine following this anæmia, explained a great many of these phenomena.

Amygdalotomy followed by Diphtheria and Croup.—Dr. A. CAILLÉ, of New York, related the case of a boy, four years of age, who had been brought to him for removal of hypertrophied tonsils. He found adenoid vegetations, on digital examination, and the gums were somewhat swollen from carious teeth. In this case he departed from his usual practice of employing prophylactic treatment, as the parents were anxious to have the operation done without delay. The tonsils were removed with a disinfected amygdalotome, and the parents were instructed to use Labarraque's solution on the parts. In addition to this, as the boy was unwilling or unable to gargle his throat properly, he was given internally small doses of chlorate of potassium at intervals of an hour. The next day he was violently ill. Examination showed that the stumps of both tonsils were covered with false membrane, and in addition to this he

had vomiting and cerebral symptoms. A culture was taken from this membrane and from the teeth, and it showed the presence of diphtheria bacilli and of streptococci—a mixed infection. The parts were sprayed with mercuric bichloride, and small doses of bichloride were given internally. On the evening of the same day his condition was unchanged, except that he was somewhat hoarse. The next morning there had been an extension of the membrane into the posterior pharyngeal wall, and he had a well-marked croupy cough. Twelve hours later there was a thin deposit of membrane on the posterior surface of the epiglottis, and the laryngeal stenosis had increased. On the next day it was necessary to perform intubation. In course of time the patient recovered fully from the trouble, and after an interval of three weeks the adenoid vegetations were removed. The speaker said that this case had impressed him with the importance of carrying out in every instance the naso-pharyngeal toilet, and added that this was specially indicated where there was present catarrh, pertussis, scarlatina, or measles, or where it was intended to operate for adenoid vegetations. He recommended for the purpose the employment of mild antiseptic solutions, such as weak salt solution, boric-acid solution (two per cent., or saturated), Labarraque's solution (one to twenty), or bichloride solution (one to twenty thousand). Where carious teeth were present, these should first be extracted or filled. He also thought it was highly desirable to ascertain before operating whether or not diphtheria bacilli were present about the tonsils or adenoid growths.

Dr. A. JACOBI, of New York, said that for twenty years past he had been endeavoring to impress upon his pupils the importance of not operating during the prevalence of diphtheria in a community, especially where the operation was to be performed upon the tonsils. On hundreds of occasions he had seen such a wound become covered with a thick false membrane, and in many instances this had been followed by general diphtheria. Notwithstanding his repeated warnings, little attention had been paid to this subject, either by the profession or by the laity, and he was therefore particularly glad to hear the subject again brought up in the paper that had just been read.

Dr. H. KOPLIK, of New York, said that it was remarkable to find in how many cases the tonsils harbored the Loeffler bacilli in the very depths of the lacunæ. Children having large tonsils were particularly prone to attacks of lacunar amygdalitis. The virulent diphtheria bacilli were found in the depths of the lacunæ, and not on the surface.* It was a very simple matter to make a culture from the tonsils previous to doing an operation upon them, and after forty-eight hours one could tell positively in this way whether or not diphtheritic bacilli were present. The reason that diphtheria was not usually developed when no operation was performed on the tonsils was that the diphtheria bacilli, so long as they remained in the lacunæ bathed in the lymph which exuded into these lacunæ, were consequently under the influence of leucocytes, and therefore were diminished in virulence. Again, it should be remembered that after the virulent bacilli had remained in the tonsils several weeks they became non-virulent.

Dr. DILLON BROWN, of New York, said that he agreed fully with Dr. Caillé as to the importance and necessity of using an antiseptic lotion on the naso-pharynx before and after operations on these parts, but he would like to call attention to the fact that in a certain number of cases such methods were impracticable, owing to the objection of the child or of the parent. Under such circumstances antiseptic vapors would be found very useful, particularly fumigation with calomel.

Congenital Constipation.—Dr. F. HUBER, of New York, then read a paper on this subject. He said that, besides constipation from other causes, there was a congenital form of con-

stipation which depended entirely upon the normal anatomy of the colon. The alvine evacuation under these circumstances was dry and insufficient, the watery element having been absorbed in the reduplication of the colon. He then reported the case of a boy, five weeks old, who from his birth had been constipated, and had suffered from cramps. When the child was first brought to him it appeared to be fairly healthy, but was in great pain and was straining and kicking. Vomiting had existed for two days previously, and examination showed that the abdomen was swollen and tympanitic. There was an indistinct elongated swelling to be made out across the abdomen, two inches above the level of the umbilicus. The child's temperature was 102° F. The speaker said that he had found as a result of experience that peritonitis in early childhood was generally septic, and by a process of elimination and exclusion in this case he had arrived at a diagnosis of acute intestinal obstruction due to impaction of fæces in a reduplication of the sigmoid flexure of the colon. This condition was frequently misunderstood and neglected. In the milder cases it was trivial; in the severer grades, however, it was very serious, and might even jeopardize life. The ascending and transverse portions of the colon were very short in the fœtus and in the newborn, the descending portion being very long proportionately. This resulted in the descending colon being crowded down into a narrow pelvis and forming a number of curvatures instead of one sigmoid flexure. The intestinal contents were therefore retarded, the fluid was absorbed from the fæces, and the fæces were thus rendered hard and dry, so as to form an obstruction. The treatment of such cases was simple, and consisted in distending the lower part of the bowel with enemata, so that the reduplication might be unfolded from below, and the patency of the bowel thus restored. High rectal injections should be given, and it might be necessary to continue the treatment for a number of years before the proper relation between the colon and the sigmoid flexure was established. Crying or anything tending to increase the abdominal pressure should be carefully guarded against.

Dr. W. L. STOWELL, of New York, said that by a persistent use of ox-gall and sweet oil with oil of turpentine, where there was a hard scybalous mass present, he had been able, both in infants and in adults, to cause a free movement from the bowels.

Dr. FRUITNIGHT said that, as many of these cases depended largely upon the unusual dryness of the fæces, the free administration of water should not be neglected, as this would tend to increase the solubility of the alvine contents.

Dr. FORCHHEIMER, of Cincinnati, said that the osmotic equivalent of the intestine of the adult was equal to infinity, so far as water was concerned. Clinical experience seemed to show that by adding fluid the intestinal processes in children could be modified. Absorption, and possibly also digestion, in the infant was a different process from what was found in the adult in this respect. We could do a great deal more by giving water in an infant than we could in an adult.

A Case of Malignant Measles was reported by Dr. J. C. WILSON, of Philadelphia. The patient was a strong, healthy man, thirty-seven years of age, who had just had three of his children recover from measles. He had been ill himself for two or three days, when he suddenly became stupid, the surface of his body became cool and covered with a profuse perspiration, and the skin showed a petechial eruption consisting of spots varying in diameter from one to eight or ten millimetres. These spots were for the most part oval or circular in shape, but some of the larger ones were quite irregular. They were very abundant, and were pretty uniformly scattered over the trunk and thighs. This eruption was most abundant about the arms, legs, wrists, and temples. There were no hæmorrhages from the mucous surfaces. The temperature was 100.2°. The condition

of the patient rapidly became worse after the development of this eruption, so that at eleven o'clock on the following day his condition was really desperate. His temperature was then 99°, and he was almost in a condition of collapse. Reaction took place under appropriate treatment, but he continued in a condition of stupor bordering on coma. There was no vomiting or rigidity of the neck; the pupils were moderately and symmetrically dilated, and responded to light. During the night the temperature rose steadily, and by six o'clock in the morning it had reached 102.6°. By the evening of that day it had risen to 105.2°. During the day a dusky-pink maculo-papular eruption developed on the wrists and on the side of the face and neck, and this was associated with a slight conjunctivitis, but without any cough or sneezing. Physical examination showed very slight bronchitis. A condition of delirium passed soon into one of stupor, but still the head could be flexed on the chest and moved from side to side without difficulty. A specimen of urine obtained at this time with the catheter was examined and found to be acid, to have a specific gravity of 1.029, and to contain a small quantity of albumin. There was no sugar present. At this time his pulse was between 130 and 140, and was very feeble, irregular, and intermittent; the respiration varied between 38 and 46. By the evening of the following day the temperature had risen to 105.6°, and the stupor had deepened. At nine o'clock he died. An autopsy was not permitted. During his illness Dr. A. C. Abbott had examined a specimen of blood taken from one of the large petechiæ, but had found neither bacteria nor any other form of parasite.

This case, the speaker said, was chiefly of interest from the standpoint of diagnosis. The diagnosis between measles on the one hand and typhus fever, purpura fulminans, cerebro-spinal fever, and variola on the other hand was to be made. It seemed that typhus fever could readily be excluded, for there had been no cases of this disease reported in Philadelphia for a long time previous. Against the existence of purpura fulminans were the facts that the patient had been in excellent health previously, and that the disease had come on suddenly with pyrexia and the rapid development of a universal petechial eruption in which the spots had not increased in number or in size. There was also no bleeding from the mucous surfaces, and, finally, there was the appearance of a distinct rash on the third day. The absence of vomiting and of painful rigidity of the muscles of the back of the neck were important facts arguing against the existence of cerebro-spinal fever. There had been no known exposure to small-pox, the characteristic eruption of this disease was not present, and the patient had been vaccinated previously. The direct diagnosis of measles rested on the exposure to this disease, the faint and limited but distinct maculo-papular eruption, its crescentic arrangement, and the existence of fever.

Dr. FORCHHEIMER requested that in the discussion of this case the members should present their views in regard to the frequency of second attacks of measles.

Dr. ROTCH said that he wished to place himself on record as believing fully in the occurrence of measles several times in the same individual.

Dr. FRUITNIGHT said he had seen measles occur three times in the same person between the ages of two and fourteen years.

Dr. STOWELL said that in a large dispensary practice he had seen a great many cases of measles duplicated. During the first few years of his practice he had thought that there was a mistake in diagnosis, but as experience increased he had been led to believe firmly in the occurrence of measles more than once in the same individual.

Dr. FORCHHEIMER said that the text-books still continued to assert that the occurrence of a second attack of measles in the same person was rare. Personally, he had found it very com-

mon for an individual to have measles for a second time, and not uncommon for him to have a third attack, to say nothing of the occurrence of German measles between these attacks.

Dr. SEIBERT said that in an extensive dispensary practice he had never had the opportunity of making the diagnosis of measles twice in the same child. He did not think it impossible for a person to get the infection twice, but it was not quite so frequent, in his opinion, as some would have us believe. He said he had always been able to distinguish it.

Dr. WILSON said that he had had in constant association with him for five days of the patient's illness Dr. Pepper and Dr. Da Costa, of Philadelphia, and that they had all agreed in the diagnosis. Neither Dr. Pepper nor Dr. Da Costa, however, had ever seen such a case occur in a house epidemic.

(To be continued.)

Book Notices.

Lectures on Surgery. By DAVID W. CHEEVER, A. B., M. D. (Harv.), Professor of Surgery, Emeritus, in the Medical School of Harvard University; Senior Surgeon of the Boston City Hospital, etc. Boston: Damrell & Upham, 1894. Pp. viii-591.

THE author states, in his brief preface, that these didactic lectures are only meant to be outlines of some surgical subjects. He disclaims any pretension to a complete treatise on surgery in this volume, as the surgical course at the Harvard medical school includes other teachers and varied departments. But the long experience of which this volume is the fruition is expressed in the dedication—"To thirty-three medical classes."

These are unwritten lectures printed from stenographic reports, and consequently possess the various features of didactic teaching. The first lecture, on general considerations, contains a truth too frequently forgotten to-day: that, "although the operative part of surgery is brilliant, it is not the best part, nor does it require the highest attributes of mind." The author shows that surgery can have but two objects: to relieve suffering and to prolong life. If it does not seek to accomplish one of these objects it is on a false aim. He calls attention to the fact that scientific ardor may push aside that humanity that ought to be the great moving factor in all surgical judgment. This tendency is more likely to exist in some other than the Anglo Saxon race; for the Anglo-Saxon mind has a more humane tendency than the Latin or the German mind.

The lecture on anæsthetics contrasts the effects of and indications for ether and chloroform, giving preference to the former for surgical use.

The third lecture is on delirium tremens, and this subject is included in the course because the surgeon has "so much to do with it in all [*sic*] surgical cases." Food, nutrition, and sleep are the desiderata. Dr. Cheever advises against immobilizing fractures in such patients by plaster splints, because the muscular tremor prevents permanent coaptation.

In the chapters on gunshot wounds the author directs attention to the great difficulty of applying antiseptic treatment on the field of battle in consequence of lack of water.

In the thirty-three lectures the author displays a conservatism that may not meet with the approval of many who, if not possessing, are more or less affected by the prevalent *furor secundi*. In fact, the discovery of anæsthetics has not been an unmixed blessing, as it has induced many to follow paths that would have been closed to them some two score years ago

But it is a gratification to think that at this well-known medical school the pupils are trained in a sound pathology and practice in surgery that will enable them to be safe, if not brilliant, ministrators to the injured and diseased.

These lectures deserve a wider audience than that of the students at the school where they were delivered.

Essentials of Anatomy, including the Anatomy of the Viscera, arranged in the form of Questions and Answers prepared especially for Students of Medicine. By CHARLES B. NANCY, M. D., Professor of Surgery and Clinical Surgery in the University of Michigan, Ann Arbor, etc. Fifth Edition. With an Appendix on the Osteology of the Human Body; the whole based on the Last Edition of Gray's Anatomy. One Hundred and Eighty Fine Illustrations. Philadelphia: W. B. Saunders, 1894. Pp. x-17 to 388. [Price, \$1.] [*Saunders's Question Compend.*]

THE fifth edition of this question compend has been enhanced by the addition of a series of osteological drawings, taken from Gray's *Anatomy*, that are intended to make this work of greater service to the student. That the work has gone through editions amounting to fifteen thousand copies is an evidence of popularity that needs no comment.

Essentials of Practice of Pharmacy. Arranged in the Form of Questions and Answers. Prepared especially for Pharmaceutical Students. Second Edition, revised. By LUCIUS E. SAYRE, Ph. G., Professor of Pharmacy and Materia Medica, of the School of Pharmacy of the University of Kansas. Philadelphia: W. B. Saunders, 1894. Pp. ix-17 to 200. [Price, \$1.] [*Saunders's Question Compend.*]

IN this edition the matter has been revised and made to correspond to the United States Pharmacopœia of 1890. There have been added sections entitled An Outline of Drug and Plant Analysis, Structural Formulæ of Organic Carbon Compounds used in Medicine, Pharmaceutical Testing of Inorganic Chemicals, and Problems in Alligation and Specific Gravity.

The result of the revision and of the additions is to give us a work considerably more valuable than the first edition, and, while we frankly say that the use of technical catechisms is in our opinion both radically wrong and in the highest degree superficial, yet this volume, compared with others of its class and not judged as a text-book, is a work of considerable excellence.

To most of the questions the book contains there are corresponding answers, but there are frequently inserted unanswered "research questions" which are intended to stimulate the student to investigation. Such introductions we think are scarcely wise or advisable, for to the lazy student they are in every way inadequate, and to the serious and earnest worker entirely unnecessary.

A Manual of Diseases of the Nervous System. By W. R. GOWERS, M. D., F. R. C. P., F. R. S., Consulting Physician to the University College Hospital; Physician to the National Hospital for the Paralyzed and Epileptic. Second Edition, Revised and Enlarged. Vol. II. Diseases of the Brain and Cranial Nerves. General and Functional Diseases of the Nervous System. With One Hundred and Eighty-two Illustrations, including a large number of Figures. Philadelphia: P. Blakiston, Son, & Co., 1893. Pp. 1069. [Price, \$4.50.]

THE enlarged second volume of this most commendable text-book owes its late appearance to the necessity felt by its author of a thorough revision of the original subject-matter, and

to the numerous additions made in recent years to neurological science. To those who have not as yet consulted its pages it is well to mention how much the author's scientific simplicity, demonstrated equally by the skillful arrangement and by the treatment of the various topics, has to do with the student's clear comprehension of this most difficult branch of pathology.

Discussions on the external conformation of the cranium and of the brain convolutions are succeeded by considerations of the microscopical character of the nervous tissue and of the origin and physiological function of the various nerves and centers. The symptoms of brain lesion are divided by the author into those that are attributable in general to any disorder of the brain, irrespective of its localization, and such as are more directly dependent upon the special function of the injured part. Symptoms arising from reflex action or from secondary affection are analyzed and their importance in the formation of a diagnosis is demonstrated.

The possible variants presented by any given disease are frequently illustrated by example, and the necessity of remembering the possibility of any stated pathological condition awakening a secondary diathesis, such as hysteria, is emphasized.

Numerous drawings illustrate the text, including the unsurpassed and well-known ones of Paul Richer, of the attitudes assumed by the hysterical patient when in the convulsed or contracted state. The author must, however, have introduced a personal element into the arrangement of Richer's illustrations, as, instead of being inserted in the text as in the original, we find them here, for the most part, superposed in such a manner that the typical form is followed in vertical columns by the atypical, thus affording in one glance a bird's-eye view of all the possible varieties. We regret the necessity felt by the author of condensing his text within prescribed limits.

Antiseptics in Midwifery. By ROBERT BOXALL, M. D. Cantab., M. R. C. P. Lond. London: H. K. Lewis, 1894. Pp. 35.

This publication consists of two lectures introductory to the author's course in which are set forth in a clear and forcible manner the advantages of the antiseptic principle in midwifery practice and the improved conditions, especially with reference to the puerperium, which have resulted since it has been in operation. After considering the advantages and disadvantages of the various antiseptic agents he expresses his decided preference for corrosive sublimate, but without giving sufficient weight, as it seems to us, to the dangers which may accompany its use.

Analyses of Twelve Thousand Prescriptions. Being Statistics of the Frequency of Use therein of Official and Unofficial Preparations. Compiled by W. MARTINDALE, F. C. S. London: H. K. Lewis, 1894. Pp. xiii-504. [Price, 2s. 6d.]

THE character of this small volume is sufficiently indicated by its title, and the matter contained is highly interesting and instructive. From it we learn of the value the profession at large (the prescriptions were taken in equal numbers from six cities of the United Kingdom) attaches to each official and unofficial preparation.

To show the tendency of the drug therapeutics of the day and to have their effect upon pharmacopœia-making, these statistics can not but be of great value.

Manual of the Diseases Peculiar to Women. By JAMES OLIVER, M. D. (Edin.), etc. London: J. & A. Churchill, 1893. Pp. xi-211.

THE modest appearance of this little volume is quite in contrast with that of most of the works of similar title and char-

acter. We have read it through and can say unqualifiedly that it is a book which is worthy of careful reading, especially by those who are beginning their experience as gynæcologists or as obstetricians. Some portions of it, notably those which deal with embryology and the pregnant state, would be treated with more appropriateness in a manual devoted to obstetrics. The style of the work is argumentative and philosophical, and, while we do not in all respects agree with the author in his propositions and conclusions, there is a tone of fairness which pervades them that is exceedingly attractive. Much that is of importance might be added to the book. Perhaps it may be made the basis of a more extensive work at some future time.

Études anatomo-pathologiques. L'Inflammation. Par MAURICE LETULLE, professeur agrégé à la Faculté de médecine de Paris et médecin de l'hôpital Saint-Antoine. Paris: Georges Masson, 1893. Pp. xi-531.

THE author states that these studies are the result of the work necessary for the preparation of the course in pathological anatomy that his duties as associate professor have required him to give during the past four years.

The volume is divided into four parts. The first considers the connective and vascular tissues in inflammation; the second the epithelial tissues in inflammation; the third the general pathological anatomy of inflammatory processes; and the fourth the technique of histo-pathological examinations.

Naturally the preliminary considerations require an examination of Cohnheim's theory, which is critically and fairly reviewed, with a description of the law of diapedesis, of the anatomy and physiology of the white corpuscles, and of the rôle of the fixed cells, of the endothelium, and of the capillaries in inflammatory processes.

A chapter is devoted to the consideration of the increased diapedesis of the white blood-corpuscles in all forms of inflammatory processes. There is a chapter on pus and suppuration that describes the histology of pus, the mode of formation of purulent collections, and the methods of eliminating pus. The chapter on inflammatory exudates surveys this subject in general, and contains special sections on pericarditic, pleuritic, and ascitic effusions; while in a subsequent chapter the author places stress on the diagnostic value of a chemical study of these effusions.

Five chapters are devoted to the general pathology and the acute and chronic degeneration of epithelium.

Three chapters are given to the consideration of inflammatory hypertrophy and hyperplasia, sclerosis, calcification, amyloid degeneration, and caseification.

The final chapter on methods of staining will be found most useful.

The author is a disciple of Gautier in the importance he attaches to the chemical aspect of his study, and we do not think that the case is yet decided. Further investigation must demonstrate the exact value of the chemical factors.

The book is beautifully printed and illustrated, and the author's style is clear and concise. The volume will prove interesting and useful to every pathologist, and will remain a monument to the author's research and acquirements.

Disease and Race. By JADROO. London: Swan, Sonnenschein, & Co., 1894. Pp. vi-121.

IN the first chapter of this book we are told, with various historical data, that leprosy is the most terrible, the most prolonged, and the most hopeless disease known to mankind. In the second chapter we are informed that when syphilis first appeared, about 1380, it was regarded as a modification of lep-

rosy, and this author considers he has good grounds for believing that gonorrhœa and leprosy produced syphilis.

An instance of the author's logic may be cited from the third chapter. As syphilis is a hybrid disease, the drug that exercises the greatest effect upon leprosy or gonorrhœa will have some effect on the hybrid disease. He then states that no known drug has any appreciable effect upon leprosy, but sandal-wood oil has the most specific action on gonorrhœa. Therefore give sandal-wood oil in syphilis, a procedure that in five out of six cases "had the most marked effect."

The author states in his preface that the condensation in Chapters IV and V "gives them a disjointed appearance," a fact that is patent on perusing them. This is unfortunate, for the volume shows considerable familiarity with recent medical discovery, but the author's presentation of his ideas lacks the sequence and cogency necessary to formulate or to sustain an hypothesis.

Trephining in its Ancient and Modern Aspects. By JOHN FLETCHER HORNE, M. D., D. Sc. (Hon.), F. R. C. S. Ed., Honorary Surgeon to the Barnsley Beckett Hospital, etc. London: John Bale & Sons, 1894. Pp. xi-133. [Price, 5s.]

ANCIENT as is the operation of trephining, its applicability to-day has been facilitated by the teachings of Lister, and the indications for its employment have been elaborated by Ferrier. Our English *confrères* have therefore placed the world under a debt of gratitude, though our own surgeons, as the author recognizes, have contributed to the advances made in cerebral surgery. He says: "No apology is needed for the frequent references made to American surgery; I can not but admire the genius and assiduity of the surgeons of that country, nor can we grudge them a large share of the honor for the great advances made in brain surgery."

The first chapter is devoted to the early literature of the trephine, with an account of its modern application to injuries and diseases of the head and spinal cord; the text is illustrated with copies of cuts from old surgical works, and the author narrates four cases that were under his treatment.

In the second chapter there is a brief review of trephining for intracranial extravasation, for cysts, for abscesses, for tumors, and for meningitis. The third chapter considers trephining for epilepsy, paralysis, idiocy, and mania, and, while concise, it presents the latest views on the subject.

The fourth chapter, on trephining for gunshot wounds of the head, is somewhat meager in reference to the indications for detecting the situation of the bullet.

Why the fifth chapter—trephining the spine—is introduced is not clear, for rarely does the surgeon use the trephine to remove the laminae and spinous processes.

The final chapter consists of general remarks on trephining. The author has made no effort to write an exhaustive work, seeking rather, as he states, to contrast ancient and modern operations.

The Art of Living in Australia (together with Three Hundred Australian Cookery Recipes and Accessory Kitchen Information by Mrs. H. WICKEN, Lecturer on Cookery to the Technical College, Sydney). By PHILIP E. MUSKETT, Late Surgeon to the Sydney Hospital, etc. London, Edinburgh, Glasgow, Melbourne, Sydney, and New York: Eyre and Spottiswoode, 1893. Pp. xxix-3 to 431.

THE author states that the Australians live in direct opposition to their semi-tropical environment, the consumption of butcher's meat and of tea being paralleled in no other country, while the deep-sea fisheries are neglected, market gardening is only partially developed, and viniculture is ignored.

The work is divided into two parts. The first is devoted to the climate of Australia, to ablution, bedroom ventilation, clothing, diet, exercise, and Australian food products. The second part is devoted to cookery receipts and accessory kitchen information.

To those residing in Australia or intending to go there the book will prove quite interesting.

A Primer of Psychology and Mental Disease. By C. B. BURR, M. D., Medical Superintendent of the Eastern Michigan Asylum, etc. Detroit: George S. Davis, 1894. Pp. vi-104.

THIS little work has been prepared for the use of nurses desirous of acquiring accurate information regarding nursing the insane. It is divided into three parts. The first forms a very satisfactory exposition of the psychological data essential to the nurse's understanding of the normal action of the mind; the second describes the more important forms of insanity; and the third considers the management of cases of insanity.

The author's experience has served to inform him regarding the instruction most needed by nurses, and the practical features of this book make it a very useful manual.

Tables and Notes on Human Osteology, for the Use of Students of Medicine. By SEBASTIAN J. WIMMER, M. A., M. D., Member of the Metropolitan Medical Society, etc. With a preface by WILLIAM F. WAUGH, A. M., M. D., Professor of Clinical Medicine, Chicago Post-graduate College, etc. Philadelphia: The Medical Publishing Co., 1894. Pp. 239. [Price, \$1.50.]

IN this little volume the author has arranged the descriptions of the various bones according to a certain definite plan of situation, form, structure, development, articulations, and the various anatomical parts presented for examination. According to this scheme the bones of the head, the trunk, and the upper and lower extremities are described. The book is intended to aid the student in acquiring a knowledge of the salient features of osteology, and we believe that it will accomplish its purpose satisfactorily.

Transactions of the Southern Surgical and Gynecological Association. Vol. VI, Sixth Session, held at New Orleans, La., November 14, 15, and 16, 1893. Published by the Association, 1894. Pp. xlvii-392.

THE contents of this volume show a lively interest in the most important surgical questions of the day. Though the society is nominally a Southern one, sectional lines are not apparent, and the same familiar names are found in the papers read and in the discussions that are to be found in the meetings devoted to the discussion of surgical subjects all over the country. The educating work of such meetings is very useful wherever they are held, and it is especially valuable in the South with its sparsely settled communities and remoteness from the greater centers of medical activity. This society has a most important work to perform, and it is performing it in a very creditable manner.

Transactions of the American Association of Obstetricians and Gynecologists. Vol. VI, for the year 1893. Philadelphia: W. J. Dornan, 1894. Pp. viii-308.

THIS volume presents about the same characteristics and the same variety as its predecessors. In quantity the matter is rather less profuse; in quality it preserves its usual high standard. We miss the names of some of its well-known contributors of previous years, and we observe in its membership roll

that some have dropped out. We trust that this does not signify a lack of interest in the work of the society, which we have always felt was a very useful and instructive one.

BOOKS, ETC., RECEIVED.

Les médecins grecs à Rome. Par Maurice Albert. Paris: Hachette et cie., 1894. Pp. x to 323.

Ueber Diabetes Mellitus. Vortrag gehalten in der Balneologischen Gesellschaft zu Berlin. Von Dr. Kallay, Karlsbad. [Sonder-Abdruck aus *Deutsche Medizinisch-Zeitung*.]

Hysterical Seizures relieved by Hypnotic Suggestion. By Judson Daland, M. D. [Reprinted from the *University Medical Magazine*.]

The Diagnosis of Mitral Valvulitis, with a Report of Three Cases. (Clinical Lecture delivered at the Philadelphia Hospital.) By Judson Daland, M. D. [Reprinted from the *International Clinics*.]

The Treatment of Cholera by Hypodermoclysis and Enteroclysis. By Judson Daland, M. D. [Reprinted from the *American Journal of the Medical Sciences*.]

Abortion as an Ætiological Factor in Gynæcology, and its Treatment. By Francis Foerster, M. D. [Reprinted from the *Post-graduate*.]

Comparative Microscopical Studies of the Ovary. By Francis Foerster, M. D. [Reprinted from the *American Journal of Obstetrics*.]

A Suggestion of an Operation to correct Astigmatism. By W. H. Bates, M. D. [Reprinted from the *Archives of Ophthalmology*.]

The Physical Basis of Insanity and the Insane Diathesis. By William A. White, M. D. [Reprinted from the *American Journal of Insanity*.]

Exophthalmos due to Orbital Hæmorrhage. By Dr. Harry Friedenwald and Dr. Albert C. Crawford, of Baltimore. [Reprinted from the *Archives of Ophthalmology*.]

Discussion on the Prevention and Communicability of Phthisis Pulmonalis, before the Michigan State Medical Society. Remarks by Dr. E. L. Shurly, Detroit. [Reprinted from *Proceedings of the Michigan State Medical Society*.]

The Uric-acid Diathesis and its Treatment. By John F. Barbour, M. D. [Reprinted from the *American Therapist*.]

Congenital Occlusion of the Posterior Nares. By W. Scheppegrell, M. D., of New Orleans. [Reprinted from the *Annals of Ophthalmology and Otolaryngology*.]

Contribution à l'étude de l'ulcère perforant de la cloison du nez. Par Dr. E. J. Moure. [Extrait des *Archives cliniques de Bordeaux*.]

Nuovo metodo di cura della tubercolosi polmonare. Per il dottore Carasso Giovanni Michele. [Estratto dal *Giornale medico del ro. esercito e della ra. marina*.]

Index-Catalogue of the Library of the Surgeon-General's Office, United States Army. Authors and Subjects. Volume XV. Universidad—Vzoroff. Washington: Government Printing Office, 1894.

Vital Statistics of New York City and Brooklyn, covering a Period of Six Years, ending May 31, 1890. By John S. Billings, M. D., Surgeon, United States Army, Expert Special Agent. Washington: Government Printing Office, 1894. [Department of the Interior, Census Office.]

Human Physiology. By John Thornton, M. A., etc. With Two Hundred and Sixty-eight Illustrations, some colored. New York: Longmans, Green, & Co., 1894. Pp. 436. [Price, \$1.50.]

The Graphic History of the Fair, containing a Sketch of International Expositions, a Review of the Events leading to the Discovery of America, and a History of the World's Colum-

bian Exposition held in the City of Chicago, State of Illinois, May 1 to October 31, 1893. Describing the Notable Features of the Several Departments, the Sculpture of Buildings and Grounds, the Department Edifices, the State and Foreign Buildings and Pavilions, the Exhibits, etc. With nearly One Thousand Illustrations. Chicago: The Graphic Company. Pp. 9 to 240.

Functional Constipation. By W. Blair Stewart, A. M., M. D., Bryn Mawr, Pa. [Reprinted from the *New England Medical Monthly*.]

A Case of Cysticercus of the Vitreous. By W. Cheatham, M. D., of Louisville, Ky. [Reprinted from the *Annals of Ophthalmology and Otolaryngology*.]

On Double Consciousness. Experimental Psychological Studies. By Alfred Binet. Chicago: The Open Court Publishing Company. Pp. 5 to 93.

The Removal of Stone in the Bladder. By W. S. Forbes, M. D., Philadelphia. [Reprinted from the *Medical News*.]

Cremation as the only Sanitary Method of disposing of the Dead. By W. F. McNutt, M. D., of San Francisco. [Reprinted from the *Proceedings of a Second Annual Sanitary Convention*, held under the Auspices of the California State Board of Health, at San José, April 16, 1894.]

A Handbook of Medical Microscopy for Students and General Practitioners, including Chapters on Bacteriology, Neoplasms, and Urinary Examinations. By James E. Reeves, M. D., Member of the Association of American Physicians; Ex-President of the American Public Health Association, etc. With a Glossary and Numerous Illustrations (partly in colors). Philadelphia: P. Blakiston, Son, & Co., 1894. Pp. xv-17 to 237. [Price, \$2.50.]

Inebriety or Narcomania: its Ætiology, Pathology, Treatment, and Jurisprudence. By Norman Kerr, M. D., F. L. S., Fellow of the Medical Society of London, etc. Third Edition. London: H. K. Lewis, 1894. Pp. xxxix-780. [Price, 21 shillings.]

Macrobiotic; or, Our Diseases and our Remedies. For Practical Physicians and People of Culture. By Julius Hensel, Physiological Chemist. Translated by Professor Louis H. Tafel, of Urbana University, Ohio. From the Second Revised German Edition. Philadelphia: Boericke & Tafel, 1894. Pp. 6-7 to 201.

Strangulated Hernia: the Importance of its Early Recognition and Advantages of Prompt Operative Interference. By I. P. Klingensmith, M. D. [Reprinted from the *Medical Brief*.]

The Care of the Injured by the Pennsylvania Railroad. By I. P. Klingensmith, M. D. (Read at the Fifth Annual Meeting of the National Association of Railway Surgeons.)

Micro-organisms in Water: their Significance, Identification, and Removal, together with an Account of the Bacteriological Methods employed in their Investigation. Specially Designed for the Use of those connected with the Sanitary Aspects of Water Supply. By Percy Frankland, Ph. D., B. Sc. (Lond.), F. R. S., and Mrs. Percy Frankland. London and New York: Longmans, Green, & Co., 1894. Pp. vi-532.

Miscellany.

The Lyons Discussion on Anæsthetics.—The *Lyon médical des sciences médicales de Lyon*, at which a discussion on anæsthetics was concluded. M. Lépine said that ether caused less bronchial irritation in proportion as it was the purer—it had

been said, indeed, that with absolutely pure ether one might anæsthetize persons affected with bronchitis. The aldehydes had been noticed among the impurities. Instances would be met with, however, of accidents due to idiosyncrasies. The speaker had recently read in a Swiss journal of the case of a woman, twenty-seven years old, who, after having taken a very small quantity of ether, had ceased to breathe and had recovered only after a prolonged period of danger. This same young woman had afterward been chloroformed without the slightest accident. There was no absolute safety to be found in ether itself. As regarded an injurious action on the kidneys, chloroform was the more dangerous. The speaker mentioned seven patients with albuminuria in whom that symptom had not been augmented by ether. On the other hand, in six other patients, who were not albuminuric, albumin had been found in the urine after etherization, and in one case the albuminuria had lasted fourteen days. The effect of ether upon the general nutrition was analogous to that of chloroform; both anæsthetics retarded nutrition, but this effect of chloroform was the more pernicious.

M. Mouisset remarked that it was generally supposed that in children the respiratory center resisted chloroform better than ether. As bearing upon this impression, he related a case that had happened early in his career, in which M. Fochier had asked him to anæsthetize a child who was to be circumcised. At the risk of appearing timid, the speaker had made the following confession: "I have never anæsthetized a child, I have never made use of chloroform, and, brought up as I have been in the fear of that anæsthetic, I should distrust anæsthesia under such conditions." For these reasons he asked M. Fochier to begin the anæsthetization himself, for, it was said, accidents occurred for the most part at the outset. Thereupon M. Fochier poured two or three drops of chloroform on a compress which he placed very carefully before the child's nose. Immediately the cries stopped, the child was no longer breathing, it was in a state of apparent death. It was not until after several minutes of anxiety that it was brought back to life by artificial respiration. In bringing this case up the speaker did not intend to combat the conclusions of previous speakers or to invalidate the results of their experiments, but only to insist upon the dangers of chloroform. To account for the accidents observed in the course of chloroform anæsthesia, it was sometimes charged to the inexperience of the anæsthetizer and sometimes to an abnormal state of the myocardium. In the case that he had spoken of the patient had been a child, and therefore but little liable to cardiac syncope, and the anæsthetization had been carried on by a master and under circumstances that did not admit of any fault being found with it. He would repeat, therefore, that beginners ought to be warned that in exceptional cases there was danger in the use of chloroform, even with children.

M. Mayet referred to the solvent action of anæsthetics on the red blood-corpuscles, and remarked that this was more pronounced in the case of chloroform than in that of ether.

M. Augagneur said that the albuminuria that resulted from anæsthesia was transitory, and, being transitory, it could not be due to an alteration of the blood. Any irritation, he said, whether of the skin or of the mucous membranes, might give rise to albuminuria, and in any operation the excitation of the sensory nerves might produce a transitory albuminuria.

M. Poncet asked what proportion of the anæsthetic M. Mayet estimated to be present in the tissues at a given time in the course of anæsthesia. M. Mayet replied that it was clear that the quantity of the anæsthetic in the blood could not be very great on account of the constant exhalation. To produce hæmoglobinuria it was sufficient to mingle one per cent. of

ether with the blood; in cases of prolonged anæsthesia saturation of the blood must be effected. M. Lépine said that in animals anæsthetized with chloroform 1·2 per cent. of the anæsthetic had been found in the blood.

M. Gangolphe said that since the year 1875 he had anæsthetized or seen anæsthetized from nine to ten thousand persons, and he had seen only one case of death. He had, however, witnessed alarming occurrences in a number of instances, always pertaining to the respiration under one of the following heads—threatened asphyxia from liquids vomited and arrest of respiration by tonic muscular contraction. He had very seldom been obliged to resort to artificial respiration, and never to tracheotomy. The accidents produced by ether were respiratory and not cardiac; slight anæsthesia might be produced with ether and yet the patients feel no pain. This sort of anæsthesia was not possible with chloroform. Chloroform favored the surgeon at the expense of the patient. Anæsthesia with ether varied a good deal according to the administrator and according to the patient. The value of injections of atropine and morphine appeared questionable; nevertheless, perhaps they made it practicable to use less of the anæsthetic. On the whole, the speaker's impression was more favorable to ether than to chloroform.

M. Mayet said that injury to the vitality of the blood-corpuscles might result from prolonged anæsthesia. He believed that in several cases the patients had begun to breathe again, but that after an hour or two real death had supervened. In such cases there probably existed an alteration of the blood involving the impossibility of arresting hæmorrhage.

M. Ballas thought that ether caused a little more increase of the bronchial secretions in children than chloroform; it was no more dangerous than chloroform, but as dangerous.

M. Guinard reported the curious case of a dog in which intestinal gangrene had been produced between two occlusive ligatures. The animal was anæsthetized with ether and the abdominal walls and the peritonæum were cut through without accident, but as soon as the instrument was brought into contact with the gangrenous coil of intestine respiratory syncope resulted, from which it took fifteen minutes of artificial respiration to restore the animal. The anæsthesia was then resumed, but as soon as it was sought to begin the enterorrhaphy again a second syncope took place, and this one was fatal.

The American Electro-therapeutic Association.—The following is the preliminary programme of the fourth annual meeting, to be held in New York on September 25th, 26th, and 27th: The president's address, by Dr. W. J. Herdman, of Ann Arbor, Mich. *Reports of Committees:* On Standard Coils, by Dr. W. J. Morton, of New York; on Standard Meters, by Dr. Margaret A. Cleaves, of New York; on Standard Electro-static or "Influence" Machines, by Dr. W. J. Morton, of New York; on Constant-current Generators and Controllers, by Dr. W. J. Herdman, of Ann Arbor, Mich.; on Standard Electrodes, by Dr. A. Laphorn Smith, of Montreal; on a Stand and Electrode for Static Electricity, by Dr. Lucy Hall-Brown, of Brooklyn; on the Electric Light as a Therapeutic and Diagnostic Agent, by Dr. Margaret A. Cleaves, of New York. Papers relating to *The Constant Current* are to be presented as follows: Physics, Current Distribution, by Mr. W. J. Jenks, M. I. E. E., of New York; Physiological Effects, by Professor H. E. Dolbear, of Boston; General Therapeutic Uses, by Dr. A. D. Rockwell, of New York; The Galvanic Current in Catarrhal Affections of the Uterus, by Dr. G. Betton Massey, of Philadelphia; *Suites éloignées du traitement électrique conservateur gynécologique*—Grossesses consecutives, by Dr. Georges Apostoli, of Paris; Metallic Electrolysis, by Dr. Georges Gautier, of Paris, Dr. W. J. Mor-

ton, of New York, Dr. Margaret A. Cleaves, of New York, and Dr. A. H. Goelet, of New York; The Treatment of Urethral Stricture, by Dr. Robert Newman, of New York; The Electrotherapeutics of Diseases of the Eye, by Dr. L. A. W. Alleman, of Brooklyn; Notes on Goitre and Improvements in Apparatus for its Treatment, by Dr. Charles H. Dickson, of Toronto; Diseases of the Throat, by Dr. D. S. Campbell, of Detroit; The Action of Electricity on the Sympathetic, by Dr. A. D. Rockwell, of New York; The Treatment of Neuritis by the Galvanic and Faradaic Currents, by Dr. Landon Carter Gray, of New York; Electric Sanitation, by Professor John W. Langley, Ph. D., of Cleveland; The Physics of the Electric Light in Relation to Organized Matter, by Professor John O. Reed, Ph. M., of the University of Michigan; The Physics and Appliances of Hydro-electric Methods, by Mr. Newman Lawrence, M. I. E. E., of London; Special Hydro-electric Applications, by Dr. Margaret A. Cleaves, of New York; The Hydro-electric Therapeutics of the Constant Current, by Dr. W. S. Hedley, of Brighton, England. *Induction Currents* will be considered in the following papers: Physiological Effects, by Dr. W. J. Engelmann, of St. Louis; General Faradization, by Dr. A. D. Rockwell, of New York; Gynecological Uses, by Dr. A. H. Goelet, of New York, Dr. H. E. Hayd, of New York, and Dr. A. Laphorn Smith, of Montreal. *The Sinusoidal Current* will be treated of in the following papers: The Physics, by Mr. A. E. Kennelly, F. R. A. S., of Philadelphia; The Physiological Effects, by Dr. W. J. Herdman, of Ann Arbor, Mich., and Dr. J. H. Kellogg, of Battle Creek, Mich.; The Therapeutic Uses, by Dr. Margaret A. Cleaves, of New York, Dr. W. J. Morton, of New York, Dr. J. H. Kellogg, of Battle Creek, Mich., Dr. Holford Walker, of Toronto, and Dr. A. H. Goelet, of New York; Les Courants alternatifs; leur transformation, leur mesure et leurs applications thérapeutiques, by Dr. Gautier and Dr. Larat, of Paris; On the Sinusoidal-current Method of Regulation, the E. M. F. and Resultant Current, by Dr. Lucy Hall-Brown, of Brooklyn. Under the head of "*Static and Static Induced*" the following titles appear: Physics, by Professor Edwin Houston, Ph. D., of Philadelphia; General Therapeutic Uses, by Dr. W. J. Morton, of New York; The Treatment of Chorea, by Dr. D. R. Brower, of Chicago; Static Induced, by Dr. Margaret A. Cleaves, of New York; and High-frequency Currents derived from Static Machines, by Dr. J. H. Kellogg, of Battle Creek, Mich.

Sparteine as a Corrigent of Chloroform.—At a recent meeting of the Paris *Société de biologie*, reported in the *Journal des praticiens* for July 11th, M. Langlois stated that the accidents to be avoided in anæsthetization with chloroform were primary, or laryngo-reflex, cardiac syncope and secondary, or bulbar, cardiac syncope. Atropine and morphine had been employed to prevent the first, and by so doing the inhibitory action of the pneumogastric nerve upon the heart was diminished. Together with M. Maurange, the speaker had conceived the idea of giving sparteine sulphate hypodermically along with morphine before administering chloroform. This drug, he said, was a regulator of the heart and diminished the excitability of the pneumogastric. After previously injecting about half a grain of sparteine, in rabbits, he had produced rapid and profound anæsthesia; in an animal under the influence of sparteine arrest of respiration caused by the contact of chloroform with the nasal mucous membrane took place, it was true, but the heart rapidly regained its normal rhythm. Diminished excitability of the pneumogastric was to be observed experimentally. In the dog the arterial pressure was kept up in the midst of the most profound narcosis. The remedy had been employed a hundred and twenty times in the human subject. Half a grain or more of sparteine, together with an eighth of a grain of mor-

phine, was injected fifteen minutes before giving the chloroform. The speaker had often had to deal with persons affected with heart disease or subjected to a prolonged operation, but the heart had always continued perfectly steady. M. Gley asked if sparteine would prevent the accidents that occurred at the outset of the inhalation of chloroform by diminishing the excitability of the pneumogastric nerve. M. Langlois answered that, as regarded primary syncope, the part played by sparteine was of small consequence; it was a tonic and a regulator of the heart, acting rather against secondary syncope. Morphine, on the contrary, diminished the danger of primary syncope.

Iodide of Rubidium.—In the *Union médicale* for July 5th the question if iodide of rubidium was of sufficient importance to take a place in therapeutics was discussed. M. Vogt was of the opinion that it was, as he had been able to observe the good effects of this new salt. The taste was not very pronounced, and patients took it much more easily than the ordinary iodides. One of M. Vogt's patients had not observed the primary symptoms of pharyngitis and acne pustules appear until after six days of the treatment, while with potassium iodide the effects showed themselves on the second day. In a case of syphilitic brain trouble M. Vogt had been able to control the symptoms in four days without the patient complaining of the annoying effects which in her case had followed the administration of potassium iodide. The new product was applicable in cases where a prolonged treatment with iodine in small doses could not be instituted on account of the individual susceptibility of the patient.

Dusting Powders for Intertrigo.—The *Presse médicale* gives the following formulas:

1. Powdered starch..... 120 parts;
Prepared chalk..... 60 "
Alum, } 8 "
Boric acid, }
Carbolic acid..... 2 "
2. Finely powdered alum, } 15 parts;
Boric acid, }
Carbolic acid..... 3 "
Precipitated carbonate of calcium... 150 "
Powdered starch..... 250 "

The Thyroid Treatment of Skin Diseases.—The *British Journal of Dermatology* for July publishes an address delivered before the Inaugural Congress of the Dermatological Society of Great Britain and Ireland by Dr. Byrom Bramwell, of Edinburgh, in which he said that he had tried the effects of thyroid extract in diseases of the skin with a definite therapeutic purpose, and the extraordinary improvement in the nutrition of the skin produced by the thyroid treatment within the course of a few weeks in cases of myxœdema and sporadic cretinism had suggested to him the idea that the remedy would prove useful in other skin diseases.

That the nervous system exerted a most powerful and important influence upon the nutrition of the skin was being more and more recognized every day, and that the thyroid extract produced a remarkable change in the nutritive system was abundantly proved by the results which had been obtained in myxœdema and sporadic cretinism. The author was therefore disposed to think that the improvement in the nutrition of the skin was due in some degree to an indirect action through the nervous system. If this opinion was correct, he said, it afforded a clew to the effects which thyroid feeding produced in some skin diseases; and it had suggested to him the desirability of trying the effects of the remedy in those diseases of the skin which appeared to be due to perverted innervation, and in

other diseases, such as Morvan's disease, sclerodactylia, etc. Whether the action was general on the nervous system as a whole, or on certain of its constituents only, it was as yet impossible to say. The point which he wished to suggest was that in some skin diseases the local improvement in the nutrition of the skin was, in part at least, the result of an improved and invigorated condition of the nervous system.

Dr. Bramwell gave a detailed account of twenty cases of psoriasis in which he had used the extract, and the conclusions which he has arrived at are: 1. That in a very considerable proportion of cases the thyroid treatment produces a temporary cure, the eruption entirely disappears, and the skin is left in an absolutely healthy condition. 2. That in some cases (but they are exceptional) rapid and immediate improvement is produced by small doses. 3. That in others improvement is produced only after distinct symptoms of thyreoidism have developed. 4. That in some obstinate cases the disease ultimately yields to the administration of very large doses continued for a long time. 5. That no case should be regarded as hopeless, unless distinct symptoms of thyreoidism have been produced, and the largest dose which the patient can take without being markedly upset has been continued, after the production of distinct thyreoidism, for at least two months. 6. That in other cases of psoriasis the thyroid extract seems to produce little or no benefit. 7. That in many of the skin diseases in which the eruption is completely cleared off and the skin left in an absolutely healthy condition after the thyroid treatment, a relapse, sooner or later, occurs. Whether, in cases of this kind, relapse could be prevented by the continued use of small doses, the author could not say. 8. That, so far as he is able to judge, chronic cases in which the skin lesions are stationary are, as a rule, more easily cured than recent cases in which the spots of eruption are small and in which the disease is constantly coming and going. The total result of his experience showed that thyroid extract given by the mouth was of great value in a considerable proportion of cases of psoriasis, and he had no hesitation, he said, in saying that, when given in the manner he had advocated, it was the most valuable internal remedy which had yet been discovered for the treatment of psoriasis.

In the treatment of lupus the results obtained seemed to show that the thyroid extract was capable of producing considerable improvement, and the author had found the results encouraging and, up to a certain point, favorable. Other cases of skin diseases, such as ichthyosis, eczema, pemphigus, etc., were cited by Dr. Bramwell, in all of which marked improvement had been obtained.

With regard to the effects of large doses, the quantity required to produce distinct symptoms of thyreoidism was variable in different persons. In some cases of psoriasis the patients were not susceptible to the action of the drug; in others the patients complained of debility. In some patients very rapid action of the heart, the pulse being from 120 to 140 a minute, had persisted for several weeks. In healthy persons elevation of the temperature was much less readily produced than acceleration of the heart's action. Some increased in weight and got fat during the treatment. This had been specially noticeable in some of the cases of psoriasis in which the most rapid and beneficial results had followed. In others, again, the administration of the drug had been attended with loss of weight. No striking alteration had been observed by the author in the condition of the urine produced by large doses of the drug or its long-continued use. In none of the cases had albuminuria been observed, and in only one glycosuria. In some cases suppurative lesions had developed as the results of an overdose.

With regard to the dose and mode of administration, the

author always began with small doses. The remedy, he said, was undoubtedly a powerful one, and it was impossible to tell how it would be borne or in what quantity it would be required in individual cases. In diseases in which the object was to clear off the eruption rapidly it was advisable to give as large doses as each patient could take. In cases of psoriasis the administration of large doses was very important. In lupus, on the other hand, where the use of the remedy usually had to be continued for very long periods, small doses should be given, and the production of distinct symptoms of thyreoidism avoided. The dry extract in the form of tabloids was, on the whole, the most active and convenient preparation. The author invariably gave the remedy by the mouth. Subcutaneous injection had, he thought, no advantages whatever, and was attended with some risk. In the great majority of the cases the diet had been unrestricted. In some a milk diet had been employed for a time; in others a dietary from which sweets and red meats were excluded had been prescribed.

American and European Advantages in Medical Education.

—The editor of a Western medical journal has been spending some months in England, and, in a letter to a professional friend in New York, dated July 12th, he says: "Supposing the points of excellence in a medical center for the purpose of post-graduate work to be abundance of clinical material, enthusiastic and skillful teachers, accessibility of the various hospitals, clinics, schools, or laboratories, and systematic arrangement of dates and hours so that different courses and branches can be reached in succession—then London is ahead, for instance, of New York, in only one point—that is, the first one mentioned. There is any amount of material; there is more than is necessary for teaching purposes. Upon the teaching capabilities and the other points I should not like to individualize or particularize. There are some excellent men and some admirably conducted schools and hospitals in London. But the opinion I have expressed is upon the general average, as practitioners visiting there to study find it. I met numbers of American doctors in London who, having tried both, said that they could do better in New York. At one time there were six Americans together taking surgery at one of the greatest London hospitals who unanimously expressed the opinion I have just stated. With the advantages now presented by New York, Baltimore, and Philadelphia, and not forgetting some rising centers farther West, there is no need for Americans to go abroad for the purpose of study. I am satisfied that fifty per cent. if not more of the trips abroad are made for *éclat*. Once change the fad and there will be a wonderful falling off in the number of medical pilgrims to Europe. And if the stream of good United States dollars, which now pours into the coffers of European hospitals and the pockets of numerous *Privat Docents* and other functionaries, was diverted to similar receptacles located on American soil, it would give a notable and well-deserved encouragement and impulse to medical research and teaching on our side of the water. Our Government does not support medical schools; the profession and the public must. Americans ought to think of these things."

Haffkine's Anticholeraic Inoculation.—In the July number of the *Practitioner* there is an official communication on this subject by Dr. W. J. Simpson, the medical officer of health of Calcutta, in which the following passages occur:

"For cholera inoculation there are two vaccines, one mild, the other strong. For a complete vaccination it is necessary to inoculate twice—first of all with the mild vaccine, which produces some pain at the seat of inoculation, discomfort, and fever for about one day; a period of five days is allowed to elapse, and then a second inoculation is performed with the second or

strong vaccine. This second inoculation produces a similar form of malaise to that caused by the first. The discomfort on the whole is milder and of shorter duration than that of vaccination against small-pox. Its harmlessness was established by very careful and patient observation on medical men and scientists, who were inoculated in Europe soon after the discovery.

"It was first proposed that Dr. Haffkine should proceed to Siam, where, by inoculating whole villages, a decision might be come to as to the value of the anticholeraic vaccinations. After an interview, however, with Lord Dufferin, ambassador in Paris, it was considered that the best country for such an inquiry was the endemic area of Bengal. Lord Dufferin took a great interest in the matter, writing to the Secretary of State for India and to Lord Lansdowne, while the ambassadors Baron de Mohrenheim and Baron de Staal put themselves to much trouble, and recommended Dr. Haffkine and his mission very warmly to the British Government. Dr. Haffkine visited London with the object of having an interview with Lord Kimberley, and explaining his system to the leaders of the medical profession in London. His reception there was of the most cordial nature. I was in London at the time, and met Dr. Haffkine on several occasions. The English Government, through the Secretary of State for India, granted facilities for Dr. Haffkine visiting every part of India, writing to the Government of India on the subject, who in their turn have rendered him valuable assistance. In his mission Dr. Haffkine arrived in Calcutta in March, 1893, and some time was taken up in preliminary matters. Cholera was not very prevalent in Calcutta then, for it was an exceptional year in this respect, and Dr. Haffkine consequently accepted an invitation to Agra, where Mr. Hankin, the Government bacteriologist, was anxious he should begin inoculations. In Agra he inoculated over nine hundred persons, European and Indian, among whom were a number of European officers, including General Morton, commanding the troops in the Agra division, Mr. Neale, the commissioner, and others. From Agra he was invited to Aligarh, where he inoculated eighty Europeans and Indians. Once the inoculations were begun, the invitations from different places in Northern India came in so rapidly that Dr. Haffkine has been unable to accept them all. Since his arrival in India he has inoculated about twenty-five thousand persons."

"What will interest the commissioners still more, however, are the results which have been obtained by the inoculation in Calcutta. This year, as soon as the cholera season began, Dr. Haffkine came down to Calcutta, and in the course of six weeks inoculated over twelve hundred persons in different parts of the town where cholera was prevalent. The numbers and the short time since the inoculations are obviously insufficient to allow of definite comparisons being drawn, but one or two remarkable facts which have been observed where the proportion of inoculations in the locality has been larger than in others, and where a small local epidemic of cholera prevailed, arrest the attention. About the end of March two fatal cases of cholera and two cases of choleraic diarrhœa occurred in Kattal Bagan Bustee, in a population grouped around two tanks. This outbreak led to the inoculation of one hundred and sixteen persons in the bustee out of about two hundred. Since the one hundred and sixteen cases were inoculated, nine more cases of cholera, of which seven were fatal, and one case of choleraic diarrhœa, have appeared in the bustee. *All these ten cases of cholera have occurred exclusively among the not-inoculated portion of the inhabitants, which, as stated, forms the minority in the bustee, and none of the inoculated have been affected.*"

"The numbers are still too small for any definite conclusions, but they are sufficient to indicate the manner in which this all-

important question will be solved. To carry on these observations in Calcutta on a large scale in its most affected parts during the next one or two years would, in my opinion, solve the question, for it is obvious that under these conditions a sufficient number of facts would be collected in Calcutta to determine the amount of protection that can be given by Dr. Haffkine's anticholeraic vaccine to individuals or communities in an affected locality; and accordingly I recommend the commissioners to give the system an extended trial."

Immoral "Massage" Establishments.—The *British Medical Journal* says: "We have received communications suggesting that an association should be formed for those who have gone through a proper course of instruction in massage and obtained certificates of proficiency, and asking our assistance in the preparation of a list of good and satisfactory workers. The suggestion is, however, beset with difficulties. We understand that a good many 'massage shops,' the advertisements of which are frequently inserted in one or two of the fashionable daily papers, are very little more than houses of accommodation. A very common plan, we are informed, is for some man with a little capital to open an establishment of this kind, and then to advertise for half-a-dozen young lady assistants to do the work. Their remuneration is nominal, but they are at liberty to accept presents from the customers, who pay the principal from half a guinea to two guineas for each visit. If the young lady is willing to make herself 'agreeable' she is retained on the staff, but if she has conscientious scruples she is discharged and some one is found to take her place. This is so well understood that young men about town often make a tour of these establishments. Many of these girls have certificates, but they, as a rule, have spent their last penny in getting instruction, and, little by little, drift into a mode of life which is often most distasteful to them. The men are often not much better, and it has become a fashionable fad for certain ladies of position to frequent the rooms of a young and good-looking masseur. We are given to understand that the subject has attracted the attention of the police, and that quite recently one of the best known of these places has been raided and stopped. Certificates in 'massage' are given, even by qualified medical men, after the most perfunctory course of instruction. The women are told that they can make a good income, but as soon as they are squeezed dry they are turned out to shift for themselves. Some of the stories of the unfortunate victims which have come to our knowledge are almost incredible. These facts have been conveyed to us privately and on reliable authority, but we fear much difficulty would be experienced in getting these young women to testify in a court of law. Our impression is that the legitimate massage market is overstocked, and that no woman, unless she has a private connection, has the slightest chance of getting a living by massage alone—at all events in London. We are afraid that nothing could be done in the way of registration unless the ground could previously be cleared of what is undoubtedly a great social scandal. It would be difficult, at all events at first, to refuse a place on the list to any woman who has a certificate from a legally qualified practitioner, and yet in many cases such recognition would mean neither more nor less than a recognition of prostitution. This may seem a very strong statement, but we can not well discredit information which has come to us from very various and well-authenticated sources."

The Shortcomings of American Lunatic Asylum Superintendents.—Commenting on Dr. S. Weir Mitchell's recent address before the American Medico-psychological Association, the *Boston Medical and Surgical Journal* says:

"To the honor of the association be it said that they invited this criticism and that they have accepted it in the spirit

in which it was uttered. In their attitude lies the greatest hope for the remedy for these evils. It is but natural to plead extenuating circumstances, and to point to the good work that many of the superintendents are doing and to the distinct advance that has already been made by the association itself. All these things, however, have been fully recognized by Dr. Mitchell. He has given full credit to the superintendents for the good work they have done, and he recognizes all the obstacles in their way—the limited means, the inertia or opposition of governing boards, and the multiplicity of duties that are thrust upon the superintendent—yet all these obstacles are among the things he condemns, and it is against these evils that he and his jury have raised their voices.

It must be admitted that many of the items in Dr. Mitchell's indictment hold good here in Massachusetts. Seldom, if ever, does a governor venture to appoint an expert in neurology and psychiatry on the State Board of Lunacy and Charity or the boards of asylum trustees. The overseers of the poor are ever eager to cut down the rates of board in the asylums, and the legislatures are only too stingy with their appropriations. The inspector of charities would not venture to make provision for a suitable pathological laboratory at Medfield, for fear that the item would be stricken out, and the trustees of Taunton hardly dare hope for a pitiful twenty-five hundred dollars for a simple mortuary and autopsy room there. Even the asylum assistants, on whom the burden of administrative work is light, and whose duties are less onerous than those of the city practitioner, can only with difficulty be induced to undertake clinical research and to present papers at the various society meetings.

We recall a large State asylum, containing several hundred insane, near a small city. The printed blanks on which the case records are kept contain headings which demand, when filled out, that a most thorough examination has been made of every patient by the most careful methods of clinical research, and an examination of the blanks in use and the reports of published cases prove that this has been done. In connection with the administration building is a large reading room containing files of all the leading neurological journals in the world; close by is an examining room with apparatus for testing the reaction time, and for other elaborate methods of psychological research; in the pathological laboratory, almost as large as that of the Harvard Medical School, not only are careful examinations made of the central nervous system in the cases that come to autopsy, but experimental research is carried on upon animals with reference to various problems of neurological interest, and one or two young men are constantly at work there; from time to time the assistants publish careful studies of the effect of certain new methods of treatment or excellent clinical studies of their cases, and aid in editing a journal of psychiatry; in one of the buildings is an elaborate system of baths, where hydro-therapy in all its forms can be employed; the whole asylum is a center for scientific research, and there are many other asylums like it in the State. Are our State asylums doing any such work? Neither in men nor in money would the Commonwealth of Massachusetts admit inferiority, yet why, in this respect, is Massachusetts so much inferior to Italy?

The American Medico-psychological Association, as we have said, have shown the spirit which will enable them to profit by the criticism they have received, but Dr. Mitchell's indictment extends beyond them to the whole medical profession. It is the duty of the profession to support the superintendents in the reforms which they will undertake; to urge upon the governor that upon every board that has to do with the insane there shall be men who are experts in neurology and psychiatry; to teach the overseers of the poor and the

legislators that an asylum is not a house of detention where the insane are to be boarded as cheaply as possible, but a hospital, demanding modern apparatus for scientific research and medical treatment as much as any other hospital. Our cities are more than liberal in the support of general hospitals, why should not the State be as liberal in the support of its insane hospitals? The profession, too, must demand that only men who have proved their ability should be appointed to asylum positions, and that they should receive proper pay. Finally, they must say to the superintendents, 'We do not want to hear about bath tubs or the price of coal; what we want to know is what are you doing for the care and treatment of the insane, what are you doing to advance our knowledge of mental pathology?'

The American Association of Obstetricians and Gynecologists will hold its seventh annual meeting at Toronto, Ont., on Wednesday, Thursday, and Friday, September 19, 20, and 21, 1894, to which a cordial invitation is extended to the medical profession. The following is the preliminary programme, subject to amendment until September 1st—namely: The President's address, by Dr. George H. Rohé, of Catonsville, Md.; Personal Experience with Pus-tubes: When to Operate, How to Operate, and the Results of Operation, by Dr. J. F. W. Ross, of Toronto; The Relation of Hysteria to Structural Changes in the Uterus and Annexa, by Dr. A. P. Clarke, of Cambridge, Mass.; Demonstration of a Mechanism of Intussusception, by Dr. Robert T. Morris, of New York; Nephrectomy, by Dr. L. H. Dunning, of Indianapolis; The Treatment of Distention of the Fallopian Tubes without Laparotomy and Removal, by Dr. Frank A. Glasgow, of St. Louis; Hysteria in Pregnancy, by Dr. W. P. Manton, of Detroit; The Relations of Renal Insufficiency to Operations, by Dr. Carlton C. Frederick, of Buffalo; The Importance of Recognizing Septic Puerperal Endometritis Early, and its Treatment, and a Demonstration of a Portable Operating Table for Gynecological and Abdominal (Trendelenburg) Work, by Dr. Edward J. Ill, of Newark; Suspension of the Retroflexed Uterus by the Utero-ovarian Ligaments, with Report of Cases, by Dr. Reuben Peterson, of Grand Rapids, Mich.; The Element of Habit in Gynecic Disease, by Dr. George F. Hulbert, of St. Louis; Some Results of Ether Anæsthesia in Abdominal Operations, by Dr. I. S. Stone, of Washington; Report in Abdominal Surgery, Presenting Cases, by Dr. A. Vander Veer, of Albany; a supplementary paper on Abdominal Section in Intrapelvic Hæmorrhage, by Dr. M. Rosenwasser, of Cleveland; Conservative Midwifery, by Dr. J. M. Duff, of Pittsburgh; The Cause of the Thirst following Abdominal Section, by Dr. Eugene Boise, of Grand Rapids, Mich.; The Care of Pregnant Women, by Dr. W. B. Dewees, of Salina, Kan.; (subject to be announced), by Dr. L. S. McMurtry, of Louisville, Ky. *Discussion*: Inflammatory Disease of the Uterus and Appendages and of the Pelvic Peritonæum: (a) Introductory Remarks, by Dr. William Warren Potter, of Buffalo; (b) Historical Sketch, by Dr. Edward J. Ill, of Newark; (c) Clinical History, by Dr. Charles A. L. Reed, of Cincinnati; (d) Causation and Pathology, by Dr. Lewis S. McMurtry, of Louisville; (e) Diagnosis and Prognosis, by Dr. James F. W. Ross, of Toronto; (f) Treatment, by Dr. M. Rosenwasser, of Cleveland, Dr. A. Vander Veer, of Albany, Dr. J. H. Carstens, of Detroit, and Dr. A. H. Cordier, of Kansas City; (g) Results—When Treated under Various Methods of Treatment, by Dr. Joseph Price, of Philadelphia; Intercurrent Typhoid Fever in Pregnancy, by Dr. Thomas E. McArdle, of Washington, D. C.; Notes on a Case of Cholelithiasis, by Dr. Frederick Blume, of Allegheny, Pa.; and Perineal Operations, by Dr. Joseph Price, of Philadelphia.

Lectures and Addresses.

GLYCOSURIA IN CONNECTION WITH APPENDICITIS: DIABETES MELLITUS.

A CLINICAL LECTURE DELIVERED AT THE PHILADELPHIA POLYCLINIC,
February 16, 1894.

BY SOLOMON SOLIS-COHEN, A. M., M. D.,
PROFESSOR OF CLINICAL MEDICINE AND THERAPEUTICS, ETC.

GENTLEMEN: By a curious coincidence, having promised to speak to you to-day concerning diabetes mellitus, I have just received a copy of the *International Clinics* for January of this year, in which is reported a lecture on the Treatment of Diabetes that I delivered here quite a long while ago, November 21, 1892—the delay in publication being my own fault—when three patients were exhibited before the class, among them Mrs. McB., who is here to-day, and Mrs. M., to whom, as we had not seen or heard from her for some time, our chief of clinic, Dr. Riesman, wrote asking her to come and report. Before reading the answer received from Mrs. M.'s son, I will read you something that was said concerning her in the lecture referred to:

"There is present in the left mamma, as a gradual growth of two years' duration, a hard mass, which my colleague, Professor T. S. K. Morton, believes to be carcinoma. Operation is deemed inadvisable because of the presence of sugar in the urine." It is the view of many surgeons of the greatest experience and soundest judgment that persons having diabetes mellitus should not, as a rule, be operated upon, except in an emergency, to save life which would be lost certainly if the operation were not attempted. Other surgeons do not go so far as this, but lay down certain indications and counter-indications for operation upon diabetic patients which we will speak of later. In a disease like carcinoma, however, in which there is no certainty of cure by the operation, and the worst that can happen to the patient is to die in the course of time by the carcinoma, operation is entirely counter-indicated in cases in which sugar is found in the urine.

As stated, we wrote to Mrs. M., asking her to come to the clinic to-day. She is not here, and we have received the following letter from her son:

"DEAR SIR: Mrs. M., who formerly visited your clinic, has been dead since November 21, 1893, having undergone an operation for cancer in the breast."

The operation was declined here on account of the presence of sugar in the urine. Some one rashly undertook it and the result was just what should have been expected.

The patient, Louis G., who is here to-day, is an illustration of the same point. He is referred to this clinic by my colleague, Professor T. S. K. Morton. Briefly, his case may be stated as one of chronic appendicitis. Dr. Morton explained that part of the diagnosis to you, so that I need not now enter into it.

The patient having come into the house for operation, if operation should be found advisable, the invariable rule

of this hospital, both in its medical and surgical wards and clinics, was carried out, and his urine was examined. Sugar being found therein, Dr. Morton declined operation,* just as he did in the case of Mrs. M., because he believes that operation is not usually advisable in the case of patients with sugar in their urine, unless there is an emergency which can not otherwise be met.

At present this man, Louis G., seems to be doing fairly well. Should acute symptoms recur, so that his life is threatened by them, surgical intervention would be perfectly justifiable; because, under the circumstances, he would have a fair chance of surviving the operation, and he would have little chance of surviving the condition for the cure of which the operation was undertaken. The balance of probabilities would be in his favor.

The conditions in this case are not like those in carcinoma, in which an operation could only be palliative in any event; in this case the operation would be curative. It would add nothing to first risks, because without the operation he would be in great danger, and he would have at the worst one chance in two of survival from the operation, while he would not have one chance in a dozen of survival without the operation. Therefore, if at any time the threatening conditions should recur, I would strongly advise this man to undergo operation; but I would not operate upon him while he remains so comfortable as he appears to be at present.

We now inquire concerning his apparent diabetes. This is our first opportunity to question him.

Q. Did you know when you came here that you had sugar in your water? A. No.

Q. Tell us your name, age, occupation, and nationality? A. (through interpreter). Name, Louis G.; age, forty-five years; occupation, laborer; a native of Posen in Poland.

As he speaks poor English, we shall have some difficulty in communicating with him, and will leave mere routine details to be supplemented later by the clinical assistants.

He says that his health had been fair until the present trouble began some five months ago. He then noticed soreness in the right iliac fossa, but paid no attention to it for some time. The trouble increasing, he applied to a hospital, where operation was advised, but was refused by him. His pains subsided until a day or two ago, when he was advised to enter this hospital for operation. Dr. Morton diagnosed subacute appendicitis. You can still feel a sausage-like mass in the iliac region. The patient was put to bed and his bowels kept open by salines. One to two per cent. of sugar was found in the urine, but no albumin. The operation was postponed, and the man now comes before us for treatment.

First let us inquire whether this man had any symptoms pointing to the presence of sugar in the urine, because I think that, just as in the case of Mrs. McB., he has a lesson for us to the effect that persons frequently

* Some later experience in which sugar was found in the urine of patients with appendicitis and disappeared after operation has led Dr. Morton to modify this opinion as to the class of cases in question.

suffer from diabetes without being at all conscious of it, or without offering any symptoms that would lead the physician to suspect the condition unless he was very much on the alert for cases of diabetes through having seen many of them. It is not a common disease, although we usually have two or three cases a year at this clinic. We seem now to be enjoying a "run" of them, but in a majority of clinics diabetes is one of the very rarest of diseases.

Now, let us see about his symptoms. Mrs. McB., when she came here, did not know that she had diabetes, but came complaining of pruritus.

Q. Have you any itching? *A.* No.

Q. Do you ever have boils? *A.* No.

Q. Do you pass a great deal of water? *A.* Three times a day.

Q. Do you have to get up at night to pass water? *A.* No.

Q. What is the record since he has been in the house? *A.* He passes about sixteen ounces a day.

Then, with such small quantities of water, the case can not be called one of diabetes; it is a case of *glycosuria*. Diabetes implies increased urination. Thus we have *diabetes insipidus*, or *polyuria*, in which are passed large quantities of water which does not contain sugar; or *diabetes mellitus*, in which the increased amount of urinary water contains an abnormal quantity of sugar. This is a case of glycosuria or saccharine urine, without diabetes. We must look a little more carefully into the subject, and may perhaps find reason to modify our view as to the advisability of a surgical procedure.

When scanty urine occurs in conjunction with high specific gravity, there is a liability to mistake uric acid and urates for sugar when the test is made with Fehling's solution. This mistake has not happened, however, in the present case. Professor Leffmann has supplemented the house analysis by polariscopic and chemical tests. The matter is simply suggested to me by the scantiness of the urine.

Q. What is the specific gravity? *A.* 1.016.

A low specific gravity. This is still more unusual—to have a low specific gravity in connection with sugar, and, moreover, with small quantities of urine. This case requires some special study. Apparently there is an hepatic and perhaps a renal failure. The amount of urea passed is below normal and the kidneys are not stimulated to their work. Hepatic disease, pyelophlebitis, and abscess may result through portal infection following appendicitis. We have no evidence of it here, but it must be borne in mind.

Q. Are you thirsty? *A.* Sometimes.

Dr. Moore says he is thirsty—wants a great deal of water.

Q. Do you sweat? *A.* Sometimes he sweats, but not as a general rule.

If a patient sweats a great deal, as a matter of course the quantity of urinary water will be diminished. And then again we have been treating this man with salines and drawing off large quantities of fluid by the bowels, so that the patient is actually passing more water, though not by the kidneys, than at first sight appears.

On casual inspection, he exhibits some of the symptoms of vaso-motor ataxia. This and diabetes are very often associated, and in such cases there is frequently a gouty diathesis. We have no special record as to the urates or uric acid in this man's secretions.

Q. Do you feel weak? *A.* Yes.

Q. When did you first begin to feel weak? *A.* Only for about two weeks.

Q. Before that you felt pretty strong? *A.* Yes.

In this case, then, there is no history of gradual weakness, which is one of the very early symptoms of ordinary cases of diabetes. The patient will complain of languor and disinclination to work long before sugar can be found in the urine.

Q. Have you indigestion? *A.* For five or six months he has complained of a sense of discomfort in the epigastrium and palpitation of the heart; had nausea some weeks ago.

This may have been due to his appendicitis; it is difficult to decide.

Q. Do you have vertigo? *A.* Four or five weeks ago he complained of vertigo.

That, too, we must throw out, as it is subsequent to the onset of the appendicitis.

Q. Are you strong? *A.* Not now.

Let us see how the knee-jerks are. Right and left both good; a little lively, if anything. In cases of long, progressive diabetes diminution or loss of the knee-jerks is quite common—a symptom attributable to neuritis, multiple neuritis being one of the conditions which the presence of sugar in the blood, like that of alcohol, lead, arsenic, and other toxic agents, gives rise to. Sometimes the symptoms are sensory only—neuralgic rather than neuritic.

Q. Are you very hungry? *A.* He used to eat one meal a day.

He certainly has not exhibited bulimia if he has been satisfied with one meal a day.

Q. How many do you eat now? *A.* Sometimes two meals a day while here in the hospital. Before coming here, only one meal a day for about three or four months. Sometimes he takes one meal; sometimes two. When he takes two, he does not feel so well; he has symptoms of indigestion.

Q. Did you eat more than usual; did you have craving for food all the time? *A.* He has not at any time had an abnormal craving for food. He often has a desire for some special thing.

Q. Are you very fond of sweet things? *A.* He is not overfond of sugar and sweet things.

This error of metabolism, then, is not due, as in some persons, to the over-consumption of sweet things, because he has not a special craving for them and takes sugar only occasionally. To sum up, he has not had bulimia or, as it is sometimes called, polyphagia; he has not had polydipsia, and does not at this moment exhibit polyuria. There is some feebleness and there is a degree of emaciation, but the chronic indigestion and the acute inflammation, with the history of restricted diet, sufficiently account for these symptoms. Thus far we have established a case of glyco-

suria and not a case of diabetes. But let us be perfectly satisfied as to the quantity of water passed before we discuss the probable cause of the glycosuria.

Q. Please make sure of this point: Did he pass more water before his entrance to the hospital than he is now passing? *A.* He is sure he passed much more water before admission.

Q. How much more did he pass in twenty-four hours before he came here than now? *A.* About twice as much.

That is, about a normal quantity.

Q. Is he passing large quantities of water by stool? *A.* Rather large, because of the salines.

This may account, then, for the diminution of water.

Examination of the lungs and heart shows nothing abnormal. The thyroid gland is apparently normal. In the abdomen we find only the conditions already described. The coated tongue and dyspeptic symptoms prove nothing; he tells us that he has no more difficulty in digesting fats than with other foods. No fat has been found in his stools while here. There is no history of jaundice, no symptom or sign pointing to liver or pancreas; as to the nervous system, we have noted only slight vaso-motor signs and some exaggeration of reflexes; this indicates a neurotic condition but no definite disease.

Probably there is a reflex or mechanical disturbance of the solar plexus, which in a predisposed subject produces this symptom.

We have therefore established simply a case of glycosuria, for which we have found no cause other than the appendicitis; and we fail to find diabetes. At the same time, the mere fact that there is sugar in his urine makes us pause as to the advisability of operation, on account of the indisposition of wounded surfaces to heal when that condition is present. Nevertheless, this case does not present the same contraindication of operation as though we had all the symptoms of diabetes.* We shall study this man's urine for a week, uninterfered with by medication, before we arrive at a positive conclusion concerning him; we shall have his eye ground examined and note the digestive conditions more carefully; but I believe our present

* Bad symptoms recurred and an operation was urged, but at first declined. The following letter from Dr. Morton gives the subsequent history:

"Our patient with appendicitis complicated by glycosuria finally consented to operation on April 4th, when reduced to an extreme degree of septicæmia and exhaustion. A three-inch incision was made into the tumor mass in the right iliac region and an abscess at once entered. This contained about half a pint of exceedingly foul pus. As the patient was in such poor physical condition, and as I did not know how the peritonæum would react in presence of glycosuria, I contented myself with simply irrigating the pus cavity and gently packing it with iodoform gauze. I here departed, for the reasons given, from my almost invariable custom of securing the appendix when operating for appendicitis. A specimen of urine submitted to Dr. Henry Leffmann two days after the operation was still reported to contain a large amount of glucose. But from that on, although repeatedly searched for, the presence of sugar was not again demonstrated. He rapidly gained in weight and strength, and in five weeks returned to his home and occupation apparently in perfect health. The wound closed solidly by granulation in three weeks."

opinion will only be confirmed by the more exact data we shall obtain.

Do not misunderstand me that all operative procedures turn out badly in the subjects of diabetes. Surgeons have collated statistics showing that the majority of diabetics submitted to various operations for various conditions recovered. Nevertheless, it must be remembered that diabetes mellitus is among the conditions interfering with the ability to recover from ether or chloroform narcosis, as well as with the recuperative power in general, and thus adds to the gravity of operation in every case. The general condition of the individual patient must be considered. The nature of the condition demanding interference, and the character of that interference, also must have weight. Operation must not be done unless necessary to save or prolong life, and unless the patient has preserved a fair degree of vigor, nor should it be done unless the chances of good result, apart from the diabetes, are sufficiently promising to compensate for the increased risk of death.

Now we will look at our other patient.

CASE II.—Mrs. McB.'s urine, which she brings to-day, has a specific gravity of only 1.010. No albumin is found; and while the Fehling solution is colored green, there is no deposit of the red precipitate which would indicate positively the presence of sugar. For further assurance, we will ferment the urine. Very small quantities of sugar sometimes turn Fehling's solution only green, and not red. We are sure that our Fehling's solution is good, and is not spoiled by keeping, from the fact that we keep the copper solution and solution of alkaline tartrates in separate phials, and admix them as occasion requires.

This patient came to us November 24, 1892, for relief of backache. I will not read her previous history in full. The principal points were complaint of pruritus vulvæ, and of the vaso-motor symptoms connected with the menopause.

Q. Have you finished the change of life now? *A.* No, sir; still in same condition.

Although a local condition, cervicitis with acrid discharge, seemed to account for the itching of the genitalia, we were not satisfied until we had made an examination of the urine, which disclosed the presence of sugar. I want to mention this again to insist upon the necessity of examining for sugar in every case that comes to you, whether of backache or headache or toeache, and also to impress upon you the great significance of pruritus—pruritus vulvæ in the female, pruritus of the urinary organs in the male, and in both sexes, pruritus ani, or sometimes general pruritus.

Q. How much water do you pass now? *A.* Two quarts and half a pint.

This is a slight reduction.

From the published record it appears that this case was treated with levulose and strontium bromide. Levulose was given as a food, strontium bromide as a medicament. Levulose or fruit sugar was formerly supposed to be an isomeric form of dextrose, and to differ from the latter merely in its behavior toward polarized light. Its name was, indeed, derived from the fact that it deflected the polarized ray to the left, while glucose, as it is commonly called,

of Egypt, in a humorous paper on this subject, writes that the incisions made were, according to the precepts of modern surgery, "free and extensive."

This same writer, while traveling through Egypt in 1824, passing through the village of Foha, observed a large number of people who had lost this important part of their anatomy, and, on inquiry, his guide informed him that the neighboring district had long been infested with bandits, and that it was found necessary to inflict some severe punishment upon such robbers as were seized, in order to intimidate those uncaptured.

Queen Elizabeth, who was noted among other things for her long nose, issued an edict once to the effect that all who spoke ill of her person or government should have their ears or noses cut off.

History tells us that Charles II punished one of his noblemen for some satirical observations by causing his nose to be cut from his face. Then we have the story of the Paris notary's wife who wreaked her vengeance on her husband's paramour by tearing her nose from her face.

The Brahmins seem to have been the leaders in rhinoplastic surgery. In Galen's travels in the East he saw the operation, and described it in words to this effect: The skin of the cheeks was drawn forward, and, to facilitate the extension of the integument, several longitudinal incisions were made, so that the flaps might be brought into apposition from either side. Celsus followed this method, but recommended making the incisions nearer the ears.* Baron Larrey also successfully employed the ancient Brahman method in two cases. Olaus Magnus suggested as a substitute for the lost nose a piece of flesh from a living fowl.

Tagliacozzi, a celebrated Italian surgeon in 1587, acquired great fame by his skill in repairing noses, and added much to the literature of his day on this subject. He was the first to repair the nose by transposing from the skin of the arm. So proud were his fellow-citizens of Bologna of this noted surgeon that they raised a statue to his memory, and in the hand of the statue there was a human nose.

In P. S. Townsend's translation of Velpeau's *Elements*

of *Operative Surgery* we have detailed an ingenious and ludicrous variety of transplantation. A person of rank, having lost his nose, would immediately procure the services of a nose maker, called a *nasifer*, who would choose one of the disfigured man's well-nourished slaves. The donor was struck upon his breech with a slipper until the integument in that place was considerably swollen; the flap was then cut from this singularly prepared breech of the form and width sufficient to replace the lost member. It was then sutured to the face, the nostril openings having been maintained by means of small cylinders of wood.

The brilliant results following [facial anaplasty are for the most part due to the large supply of blood from the numerous vessels, their multiplied ramifications, and the

free anastomosis. How often have we seen large portions of facial integument and the scalp, detached by accident, adhering only by a very narrow isthmus, unite firmly and rapidly when aseptically replaced! While, on the other hand, in other parts of the body, endowed perhaps with a less degree of vitality, a traumatic flap nourished by a much broader isthmus may be full of gangrene in an incredibly short time.

A knowledge of these facts has led surgeons from an early period in the history of the healing art to devise operative proceedings for supplying accidental deficiencies or replacing structures removed by disease.

In nose making there are to be considered several methods.

The Indian or Tagliacotian method, named for the inventor Tagliacozzi, is as tedious for the surgeon as it is fatiguing to the patient. The flap which is to serve as the new nose is dissected up from the arm or forearm and supported for about ten days on a clean, moist piece of lint; this step is for the purpose of causing granulations to spring up, thus inducing better adhesive power. The margins of the deformed nose are properly denuded, and the flap is shaped and adjusted.

The arm is then rendered as immobile as possible for a period of ten days or a fortnight, when the pedicle is cut across and the flap left in its new position vitalized from the new surface to which it has been attached. Graefe, of Berlin, modified this proceeding somewhat by performing



* Jour. complém. des science méd., May, 1821.

the whole operation at a single sitting, and also by the invention of a laced waistcoat surmounted by a hood for the purpose of reducing the patient's fatigue to the minimum, and for the more complete immobilization of the arm and head.

Graefe's first case of operation according to this method required almost a year to complete it, and then the nose was such a curious-looking one that the patient exhibited himself, for a livelihood, to the wondering eyes of those visiting the museums. In four other cases he was entirely successful.

The details of these operations are communicated in the *Gaz. méd. de Paris*, 1835, p. 168.

Post and Sabine used the patient's finger in the formation of the new nose, thus modifying the Tagliacotian method.

In the Indian method, sometimes called the process of Koomas, the flap is taken from the forehead. The first efforts in this operation were made in England, Germany, and France.

An imitation of the nose is made in pasteboard or some other material and this pattern is spread upon the forehead and outlined with some coloring matter; the flap is dissected up from the pericranium and transposed edge wise to its new position and held in place by means of a composition of Japanese earth or the suture. As the history of the case herewith submitted mentions the details of the Indian method, they will not be repeated now.

There have been modifications of this method made by Delpech, Dieffenbach, Lisfranc, Velpeau, and others, but they vary only in the treatment of the pedicle of the removed flap.

Langenbeck included the periosteum in the frontal flap. Dieffenbach and others advised the approximation of the forehead wound with sutures, but Velpeau looked upon this as an unsurgical proceeding, mentioning that out of five or six patients operated upon in the hospitals of Paris, in 1833, two of them died, and others experienced very serious erysipelatous and phlegmonous symptoms—one having died of meningitis. But to-day this problem can be very easily set aside, as the surgeon has recourse to Thiersch's method of skin transplantation.

Regarding the priority of rhinoplasty in America there seems to be some dispute. In the American edition of Velpeau's *Operative Surgery*, vol. i, p. 626, the following statement is recorded: "The first successful case of the operation of rhinoplasty performed in America is stated on the authority of Dr. Reese (*loc. cit.*) to have been by Dr. John Mason Warren, of Boston, in 1837." That the foregoing statement is incorrect will appear from a communication which was printed in the *New York Medical and Surgical Reporter*, vol. i, No. 21, July 25, 1846. In this article Dr. J. P. Batchelder, of New York, describes the case of a man with almost complete destruction of the nose upon whom he performed the Indian operation in July, 1828; the result was most satisfactory. The stitches

were removed on the fifth day, the pedicle divided on the fifteenth day; twenty two days after the operation every part of the wound was healed and the cure pronounced complete.

While reconstruction of the nose has been one of the recognized operations in surgery in this country for many years past, the results have not always been so encouraging as to lead the surgeon to recommend the operation indiscriminately.

It is rare indeed that we see, in these times, complete or even partial destruction of the nose or face from malignant disease or syphilis, for the reason that the surgeon is able to arrest the disease before any serious destructive inroads are made.

The only apology I have for publishing the following case is because the operation proved successful even beyond my expectation, improving very greatly the personal appearance of the patient:

I. B. Van F., aged forty years, came under my care May 21, 1892, giving the following history: Twelve years ago he noticed a small white blister on the right side of his nose; it gradually increased in size, refusing to yield to the usual remedies. An ulcerative process formed and advanced year by year until the destruction had reached over the ala and cartilages of the right side of the nose.

From his description, and the effects it had produced, it seems to have been lupus.

About six years from the beginning of the trouble he visited a woman who lived down the Ohio River and professed to be a



"cancer doctor." Here he subjected himself to the tortures of a burning process. This removed the ulcerative area and carried part of the nose with it, exposing the mucous membrane covering the turbinated bones and the septum, and by looking antero-posteriorly the naso-pharynx could be distinctly seen.

The Indian operation was proposed and accepted.

Operation.—May 25, 1892, ether narcosis. The details of asepticism carried out; head and beard shaved. Cicatrix completely excised, and the tissue immediately adjacent denuded for a short distance.

An incision was carried upward in the direction of the septum as far as the inner extremity of the left eyebrow. A second incision was made along the outer border of the right nasal bone upward, close to the inner canthus of the eye, extending about half an inch beyond this point.

The intervening integument was dissected up from the periosteum and turned aside for use later in the operation.

An exact pattern of the deformity and the denuded area was cut from a piece of aseptic oiled silk and placed on the forehead, extending upward from the left eyebrow.

An incision was now made along the circumference of the pattern, carrying the knife down to the pericranium.

In the cutting, provision was made for a little triangular tongue at the right superior corner, so that the transposed flap might fit perfectly to the left apex nasi, and to the anterior part of the septum, both having been destroyed.

The incision was carried in a curved direction through the hairy part of the scalp, thence downward on the pattern's left side, to a point without the supra-orbital notch. The object of this step was to gain the vascular support of the supra-orbital branch of the ophthalmic artery.

The flap was dissected up and transposed edgewise, carefully adjusted to the denuded surface prepared for it, and held in place by very fine iron-dyed silk sutures. The new ala was supported by an iodoform-gauze plug. Dieffenbach* observed in some experiments he performed upon rabbits that the chances for union after the transposition of a portion of the integuments were always greater when the flap was not adjusted for several minutes after it had been excised, claiming that the oozing of blood must be arrested before the secretion of the coagulable or plastic lymph commences. With this in mind the flap was held between the layers of an aseptic compress until all oozing ceased. Hæmorrhage from the flap was arrested by torsion.

The little flap which had covered the nasal bone and had been dissected up and placed to one side was now utilized in covering the lower fourth of the forehead wound.

An aseptic absorbent dressing was applied covering the head and face as far as the mouth.

Subsequent Progress of the Case.—Stitches were removed on the fifth day. Vitality of the flap found perfect; the supra-orbital artery could be felt pulsating throughout the flap. Insufflations of boric acid were used in the nostrils. Ten days after the operation a luxuriant growth of hair was noticed over the lower fourth of the new nose. Any stimulus directed to the surface of the transposed flap was referred to the forehead.

June 9th.—The forehead wound was found in an advanced state of granulation; without an anæsthetic a skin transplantation after the method of Thiersch was made from the patient's left thigh to the forehead; two grafts were used, both uniting perfectly.

One year after the first operation I removed by electrolysis the hair covering the lower fourth of the patient's new nose. In this proceeding there was used an ordinary galvanic battery

with a strength varying from ten to fifteen cells. The instrument used for piercing the follicular walls was a hair-like flexible steel broach.

Recently a right nostril was made for the patient, the opening left after the first operation having contracted so much that breathing through this nostril was very imperfect. I regret that this very satisfactory opening does not appear in the photo-engraving.

The redundancy of tissue between the eyes caused by the original twisting of the pedicle has now almost entirely disappeared by absorption.

I have not deemed it expedient or safe to incise a wedge from the root of the flap, as is sometimes advised, because the vitality of the new nose has in a number of instances been seriously compromised by this unnecessary step.

The success of the Indian operation depends upon the preservation of the flap's vitality; mortification may arise from five different causes:

1. Compression of the vessels by twisting the pedicle too firmly.
2. The congestive asphyxia of Phillips.* This writer maintains that the blood which is conveyed to the flap by the arteries should, as far as possible, be returned, otherwise there may be this condition of asphyxia.
3. Septic infection.
4. Insufficient nutrition from the failure to include the supra-orbital branch of the ophthalmic artery.
5. Compression of the pedicle from the applied dressing.

55 FOURTEENTH STREET.

THE VAGINAL ANUS AND ITS TREATMENT,

AS ILLUSTRATED BY THE REPORT OF A CASE,
AND A SUGGESTION FOR
A METHOD OF FORMING AN ARTIFICIAL SPHINCTER.†

BY A. H. BUCKMASTER, M.D.

In the following pages I have condensed the observations and cases (many of which were sadly incomplete) bearing on this subject, and I have also formulated a method of operating which I hope will diminish the number of failures in the future. A preliminary report of the case which is cited was read before the New York Obstetrical Society in May, 1892.

I have chosen the term *vaginal anus* to designate cases in which the rectum empties its contents through the vagina, and which have no opening at the usual position on the skin. The term is open to criticism because when in fœtal life the partition between the rectum and the urogenital sinus fails to form, we have both passages opening into a cloaca. However, it expresses practically the conditions with which we have to deal, and it is certainly far less cumbersome than the strange appellation *atresia ani vaginalis*.

In 1887 a little girl, seven years of age, was brought to me by her parents in order to ascertain if anything could

* *Med. chir. Rev.*, July, 1840.

† Read before the American Gynecological Society at its nineteenth annual meeting.

* *Journal hebdomadaire*, April, 1835.

be done to relieve her of the disgusting condition which is alluded to in the title of this paper. Having placed the patient under chloroform, the vulva was seen to be very red and excoriated, and there was no sign of a rectal opening in its usual position. Fæces were seen to pass from the vagina, and I was able to introduce a probe into a narrow opening in the upper and back part of that passage. The parents informed me that the condition had been recognized at birth and that some operation was done to relieve it. They did not know its nature, but they were instructed to keep an oiled rag "in an opening" made by the operator through the skin. No sign of this operation could be found. The mother said that the patient had no control over the bowel, and that the soreness about the parts, in spite of the greatest cleanliness, made the little one's life miserable. Before advising the parents as to what was best to be done, I carefully read the cases that had been recorded. The search was far from satisfactory, and I could find very few cases which entirely conformed to the requirements of a cure. To cure a case it is necessary to form a rectal canal separate from the vagina which will remain open, and over which the patient must have a slight control. In the light of the experience obtained by Emmet in his unsuccessful efforts to form a permanent vagina, and also in the light of his success in making a urethra, it was not difficult to see where the plans of the recorded operators had been defective; and, in view of the difficulties that might still be met with, I did not feel justified in promising success. I advised an operation because there was absolutely no control, and matters could not be made worse, aside from a fatal result from the operation. This I did not fear. Moreover, the let-alone treatment was not without danger. It was the custom of the parents to administer paregoric to the patient in order to restrict the number of movements, and she was accustomed to remain constipated for six or seven days. At the end of this time she became nauseated and showed the effect of fæcal absorption, and then a cathartic was used. Such a plan will result in time in distention and atony of the bowels, and this condition may assume dangerous proportions. Not wishing to run the risk of a failure to secure control over the rectum, the parents of my patient returned to the country, and I heard no more of them until 1892, when they again came to me and stated that the little girl suffered so much that they were prepared to take any risks if there was a fair hope of a successful issue. Having given the matter a great deal of thought, I was prepared to proceed, but, before I began, I told the parents that four or five years might pass before there would be much chance of complete success.

The general plan was to make a triangular cut backward, the points of the triangle being the abnormal opening behind, the spot where the anus should be below—which is indicated by the *anterior fibers of the pubic portion of the levator ani*—and the skin near the fourchette in front. The next step was to draw down the rectum to the skin. This would afford a free outlet for the fæces, and, as all denuded portions of skin could be united by a method which will be explained in another place, the patient could entirely

recover from the irritation of the passage of the fæces through the vagina, which in her case was excessive. She would then be ready for the next step, which would consist in building that portion of the pelvic floor which is some-

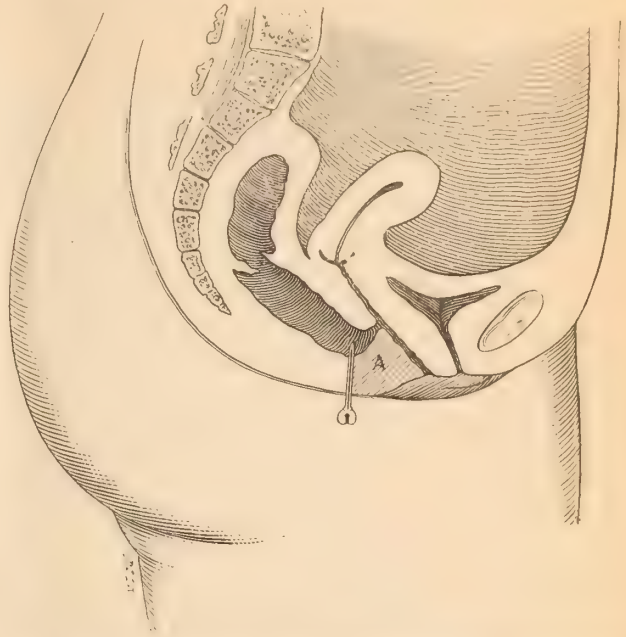


FIG. 1.—A represents a side of the triangular wound made by the incision.

times called the perineal body. This being accomplished, yet another and final operation would be the attempt to pierce the levator ani muscle, and, by forming an artificial sphincter, to secure control of the bowel. In the spring of 1892 I performed the first step of this operation and obtained the result shown in Fig. 2. The patient was entirely relieved of the irritation. On the second day after the operation I found that I had made the mistake which one

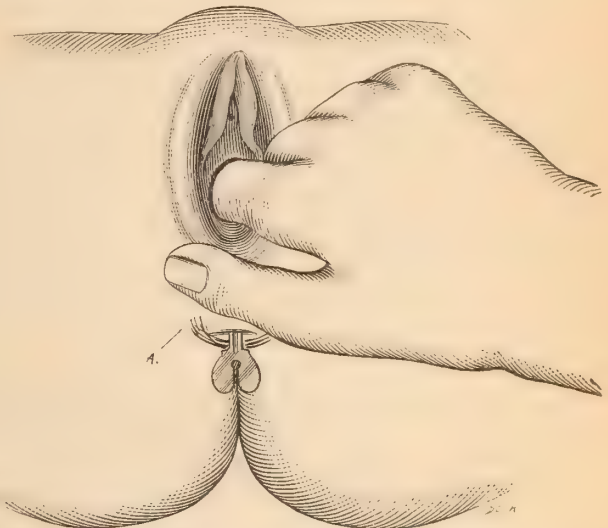


FIG. 2.—Showing point of puncture. A indicates fibers of the levator ani muscle. Of course this drawing is merely diagrammatic, and the fibers of the muscle are much deeper than shown.

is almost sure to make the first time the operation is attempted. I had too much tension on the rectum, and there was a tendency for the stitches to cut out. This is a seri-

ous mistake in any plastic work and will always result in scar tissue—the mark of slovenly surgery. How this mis-
hap can be avoided is shown in Fig. 3.

In 1893 the patient came for the second step in the operation, which is the restoration of that part of the pelvic floor which is bounded by the rectum, vagina, and perinæum. This was accomplished successfully, so that the patient now has an excellent posterior vaginal wall. Since publishing the preliminary report of the case in 1892, I noted a suggestion from Dr. Willems which I believe to be of the greatest importance. His plan is to prevent the fecal incontinence which so frequently occurs after removal of a portion of the rectum for malignant disease. The good results of simple separation of the fibers of the rectus muscle in gastrostomy led him to believe that a similar advantage might be gained by fixing the cut edges of the remaining portion of the rectum to a slit made in the glutæus maximus muscle by forcible separation of its fibers. I have determined to put this procedure in practice in my case, using the fibers of the levator ani in place of the glutæus maximus. In order to do this, it was advisable to carry the incision nearer the coccyx, and this was done six weeks ago; but, the bowels not having been thoroughly emptied, I determined to defer the piercing of the levator ani until another occasion. The operation was an absolute success so far as it went, and I had hoped to complete the remainder of the operation in time to present a case of completed operation before the American Gynecological Society, but the patient could not submit to the last procedure until a later period.

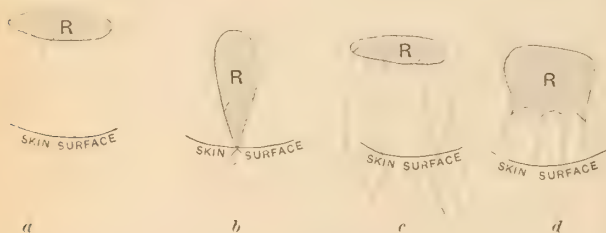


FIG. 3.—In *a* a single stitch is shown inserted. If this is drawn into place a point of the rectum will reach the skin surface, as seen in *b*. In *c* four stitches are in place, but if an attempt is made to fasten them, the rectum can not be drawn any nearer than is shown in *d* without undue tension.

Having briefly described the operation I performed, and what it is proposed to do to secure a cure, I shall now narrate the condensed histories of fifty-one cases, and then consider at length the indications and contra-indications for operative procedure as well as the operations which are indicated.

CASE I.—Benivenius records the case of a young girl who died at the age of sixteen. Just before her death she suffered from excruciating pains of a colicky character, doubtless the result of obstinate constipation and induration of the feces, for the bowels were only emptied, as a rule, once in eight days. (*Libellus de additis nonnullis ac mirandis morborum sanitationum causis*, cap. 86, Basil, 1529.)

CASE II.—Van Swieten relates the case of a young woman. No operation. (*Commentaria in Hermanni Boerhaave aphorismos de cognoscendis et curandis morbis*, lib. iv, aph. 1340, p. 575, Lugd. Bat., 178.)

CASE III.—Morgagni testifies to this case related by Mer-

curialis. The patient was a Jewess who attained the age of a hundred years. Mercurialis advised strongly against operation, and no attempt was made to correct the deformity. (*De sedibus et causis morborum*, epist. 32, art. 5, Venetiis, 1761, 2 tome, fol.)

CASE IV.—De Jessieu mentions a patient seven years of age. There is no account of an operation. (*Histoire de l'Académie des sciences*, année 1719, p. 42.)

CASE V.—Hæsbart says he saw a young woman, twenty years of age, who had always enjoyed excellent health. No operation was performed. (*Miscellanea curiosa sine ephem. Acad. Natur. Curiosor*, decur. ii, ann. x, observ. 75, p. 132, 1691.)

CASE VI.—Dodonæus. Case of a child. (*Annotat. ad Benerenium*, cap. ix.)

CASE VII.—Amatus Lusitanus records the case of an infant. (*Curationum medicinalium*, cent. ii, curat. x, Venet., 1653.)

CASE VIII.—Schenck reports the case of a child. (*Opus citatum*, lib. iii, sect. 1, obs. 258, p. 458.)

CASE IX.—Peterman records the case of a child. (*Observationes medicæ*, dec., obs. 2, Lipsiæ, 1707.)

CASE X.—Hartman records the case of a child. (*Opus citatum Hæsbart.*, ann. 1691, p. 279.)

CASE XI.—Alix. Child. (*Observationes chirurgicæ*, tome iii, p. 203, Altenburg, 1774.)

CASE XII.—Papendorf observed a child whose rectum communicated with the vagina by two abnormal orifices. (*Abhandlung von der angeboren Verschliessung des Afters bey Kindern*, Leipzig, 1783.)

CASE XIII.—Wandermonde. Child. (*Recueil périodique de la Société de médecine de Paris*, tome vi, p. 128.)

CASE XIV.—Arand. Child. (*Observat. med. chirg.*, obs. iv, p. 28.)

CASE XV.—Fürst. Child. (*Opus citatum Hæsbart.*, ann. iii, obs. 112.)

CASE XVI.—Bonn. Child. (*Papendorf. Opus citatum.*)

CASE XVII.—Kirsten. Child. (*Act. nat. cur.*, lib. ix, obs. xi, p. 24.)

CASE XVIII.—Rochard. Child. (*Journal de médecine, chirurgie, pharmacie*, tome lxxxv, p. 370.)

CASE XIX.—M. Fournier relates the case of a woman who had been in labor five days. On making an examination, it was found that the rectum did not open in its normal position. There was a large opening from the vagina through which the rectum had to be emptied of feces before the labor could be terminated. (*Dictionnaire des sciences médicales*, tome iv, pp. 155, 156.)

CASE XX.—Mr. Cook discovered the deformity in a woman, forty years of age, while in labor. The opening was sufficiently large to admit two fingers. (*English Translations of Morgagni*, vol. ii, p. 110, Boston, 1824.)

CASE XXI.—Mr. Cook found an infant who had an anus in the natural situation, but the opening was so small that a fine probe could scarcely be introduced. (*Opus citatum*, vol. ii, p. 110, Boston, 1824.)

CASE XXII.—Mr. Howship was requested by Dr. Samuel Merriman to make an autopsy on the body of a young woman, aged seventeen, who had died of a scrofulous disease. There was an external mark of an anus but no opening. There had been no want of power of retention. "Upon opening the abdomen the rectum was traced down to the posterior part of the vagina, to which it was adherent. The vagina being removed and laid open, the intestine was found to open upon its surface by a very vascular sort of papilla, situated within the vagina, near the os externum." (*Pract. Observ. in Surg. and Anat.*, p. 321, London, 1816.)

CASE XXIII.—Dr. J. Rhea Barton reports the case of an infant six weeks old. There was no trace of an anus and the fæces were passed by the vagina simultaneously with the passage of the urine. The evacuation of the bowels caused much pain. An opening was made through the skin into the rectum and lint with sweet oil used as a plug to keep the artificial anus open. The mother did not persevere with the lint and the canal closed. At the age of nine months the child began to have trouble on account of the fæces becoming more consistent, so she would at times go a dangerous time without a movement. She usually went four or five days and always had recourse to an aperient. "In taking the case into further consideration, the following method of operating suggested itself to me as one promising success: To take for my guide into the rectum the opening communicating with the vagina; to introduce into it a director and with a bistoury to lay open the vagina and integuments as far back as where the anus should be; there to remove a small portion of the integuments, if necessary, and to dissect down until I came to the termination of the gut and to open it freely. By this operation the anterior boundary of the incision would be the fistulous opening in the vagina, and posteriorly it would terminate where the natural outlet ought to be found. The subsequent treatment to consist in endeavoring to promote granulations and the cicatrizing of the original opening, and so much of the anterior portion of the incision as rendered the vagina incomplete; in the mean time to keep the remainder open until this shall have been effected. This plan was pursued, and I had the pleasure to succeed most perfectly in all my views. The integuments around the incision retracted, thereby obviating the necessity of removing them. The original aperture closed up with that part of the incision connected with it. The vagina became complete, and a route direct from the rectum was established having no connection whatever with the vagina. Under a belief, therefore, that this part of the structure, from continued use, would in time assume the functions of a proper sphincter, I operated with confidence of success, and was not disappointed. The little patient never found any difficulty from that source." (*Medical Recorder*, vol. vii, p. 357, Philadelphia, 1824.)

I quote this case at length because it is the first that shows an intelligent attempt to correct the deformity. The result achieved was far better than the operation deserved, but I have no doubt that in due time the passage closed up again.

CASE XXIV.—Dr. Satchell reports this case, which underwent operation by Dr. Parrish. The point where the anus should have opened was not indicated by a depression of the skin. The fæces were passed through a small opening situated about half an inch from the os externum. The child passed her fæces with considerable pain, at intervals of ten days or two weeks, and they were fluid or very soft. Dr. Parrish introduced a probe through the abnormal opening into the rectum and then cut down upon the point of the probe, making the incision from the outside at the place where the normal outlet from the rectum is usually found. The writer of the history states that "in the course of two or three days it was positively ascertained that the rectum had not been opened, and that if it had been opened, it would have been utterly impossible to prevent a reclosure of the gut."

The writer states that Dr. Parrish operated in the same manner as Dr. Barton. When he opened the bowel there was found a quantity of impacted fæces which had to be removed by means of the handle of a teaspoon. At the time of her discharge from the hospital, three weeks and two days after the

operation, the wound had entirely healed and the child could retain or discharge her fæces at will. No dressings were used, but the finger, lubricated with simple cerate, was introduced every day or two, in order to do away with any tendency which the opening might have to heal. (*Medical Recorder*, vol. vii, p. 359, Philadelphia, 1824.)

The report of such a case as this, the last record of which is only three or four weeks before the paper was written, is of no service in determining the lasting merits of the operation, and I venture to say that the child died within a few years at best if no further operation was done. In fact, I think she was in a much worse position after this operation than before it was done, and the same criticism applies to the case of Barton.

CASE XXV.—Dieffenbach reports the case of a child three months old with no trace of an anus externally. He performed the two following operations: He introduced a considerably curved director through the vagina into the recto-vaginal orifice, thrust a pointed bistoury immediately below the fossa navicularis, outside of the vagina, into the groove of the director, and divided all the cellular and muscular tissue between the point of departure and the coccyx. He then dissected off the end of the rectum from the abnormal opening and isolated it for some distance from surrounding parts, which enabled him to draw down the free edge of the bowel and attach it to the cleft edge of the perinæum. The cut edges of the rectum united to the skin, and the recto-vaginal aperture closed very completely after having been occasionally touched with nitrate of silver. Three weeks after the first operation, and after the complete union of all the wounded parts had taken place, he attempted the formation of an artificial perinæum. He commenced by finishing the separation of the superior wall of the rectum from the vagina with a bistoury. This portion of the rectum, thus set free in the center, contracted considerably and receded about half an inch. The deep-seated soft parts were brought together by a needle stitch, while the edges of the wound were united by two short harelip pins and the twisted suture. The operation was completely successful. This report marked an important advance. (Ueber die Verschlussung des Afters, in *Hecker's literarischen Annalen*, January, 1826.)

CASE XXVI.—Dr. Ashbell Smith, of Salisbury, N. C., reports the following case: Infant, four months of age, who had no sign of anus. Operation performed July 7, 1834. Rectum terminated in the posterior and upper portion of the vagina. I made an incision in the place commonly occupied by the anus, and continued it along the direction of the coccyx until I arrived at the rectum. The depth of this incision was from nine to twelve lines. The rectum was thus opened to the extent of two thirds or three quarters of an inch, and some fæcal matter was discharged through the incision. A transverse incision was made, and a tent smeared with sweet oil was placed in the wound to keep it open. No untoward symptom succeeded the operation; the inflammation was moderate and did not extend beyond the wound or in any degree affect the general health. About seven months after the operation (February, 1835) I again saw the patient. The artificial anus was perfectly healed, and would then easily admit the urethral bougie of a larger size, being of less dimensions than the original incisions, in consequence, probably, of the difficulty of maintaining the tent in its place. The tent had been for a long time disused and the artificial anus showed no disposition to contract further. Its parietes were covered with a smooth and apparently organized membrane. The fæces were discharged partly through the recto-vaginal canal. "It was intended to enlarge at some

future time the artificial anus, but the patient died of an acute disease some weeks subsequently to the last date, or more than eight months after the operation. No cadaveric examination. I understand, was made." (*American Journal of the Medical Sciences*, No. 34, p. 441, February, 1836.)

CASE XXVII.—Ricord records the case of a courtesan twenty-two years of age. The rectum terminated in the lower and back part of the vagina. No uterus could be found, and there had been no menstrual show. The patient had control of the passage of fæces but not of flatus. (*Journal universel et hebdomadaire de médecine*, etc., tome xii, p. 167, Paris, October, 1833.)

CASE XXVIII.—Switzer mentions the case of a prostitute. There was no pain in the passage of fæces, nor was she in the least troubled if she washed herself well after each evacuation. (*Annotaciones in colotomiam*, p. 79, Hafniæ, 1826.)

CASE XXIX.—Dr. C. G. Page read before the Boston Society for Medical Improvement the case of Dr. S. F. Ainsworth. "On examination, two openings were found in the vagina—one occupying the urethra, the other situated between the internal labia and surrounded by a small red tumor the size and shape of a common bean. Both these openings barely admitted a common probe, and from both, while under examination, a small quantity of yellow meconium and urine was expelled. There was no external trace of the anus, the skin over the entire perinæum being smooth and the rhaphe extending to the coccyx. At each explosion of the meconium or urine by the vagina a slight motion was observed in the perinæum, as if some fibers of the levator ani were inserted into the fascia. On exploring the openings in the vagina, it was found that the probe carried upward close to the pubes passed into the bladder and could be felt on the abdomen; but directed upward and backward it passed in half its length and then encountered a firm body which was supposed to be the upper part of the sacrum. When passed downward, the point could be carried a few lines below the orifice, and indistinctly felt in the perinæum." The child being apparently healthy, it was determined to operate. A probe was passed as far downward as possible in the lower opening into the vagina. "An incision was made along the rhaphe of the perinæum, and continued in the tract of the rectum about an inch and a half; the point of the probe was then distinctly felt, the tissues were carefully separated from the *cul de-sac*, and the intestine easily drawn to the external opening, where it was laid open, the serous surface everted, and confined by sutures to the external edges of the wound. A quantity of flatus escaped at the moment of opening of the intestine. A small tent was placed in the wound, a wet compress on the perinæum, and a T-bandage applied." The patient died a week from the operation, and it was found that there was a congenital malformation of the heart. The rectum terminated in a *cul-de-sac* about an inch and a quarter from the perinæum, and communicated with the vagina from its upper borders. The uterus was bifid. (*Boston Medical and Surgical Journal*, vol. lvii, p. 239, Boston, 1857.)

CASE XXX.—A child, aged four years and a half, under the care of Mr. Lane, of St. Mary's Hospital. The lower end of the large intestine had become so dilated in consequence of insufficiency of the outlet that the rectum and sigmoid flexure of the colon form an immense reservoir, capable of containing five pints, occupying the pelvis, the hypogastric, both iliac and part of the umbilical regions, and diminishing the capacity of the thorax; and the coats of the bowels had so lost their tone by prolonged overdistention that the operation which Mr. Lane performed was ineffectual, as the gut had no longer the power of emptying itself and recovering its natural size; consequently the vomiting and other symptoms persisted, and the child sank

about three weeks after the operation. Pooley calls attention to this case as illustrating the dangers of delay. (*British Medical Journal*, 1858, p. 845.)

CASE XXXI.—Mr. Holmes saw a case in which the rectum was undiminished in size down to its termination in the vagina. (*Pathological Society's Transactions*, vol. xii, p. 87.)

CASE XXXII.—The patient was a married woman who had three children. The malformation was accidentally discovered in examining her for suspected disease of the rectum. Neither she, her husband, nor the accoucheur who had delivered her three times had ever suspected any peculiarity in the organs. The anus was imperforate. (*Vices de conformation de l'utérus et du vagin*, Paris, 1863, p. 120.)

CASES XXXIII, XXXIV, XXXV.—Dr. Pooley quotes the following cases as having come under Mr. Holmes's observation: "In three cases which I have myself seen, I can not positively assert that the opening has closed in any, though in two of them it seemed highly probable that it would. One of them was under Mr. Johnson's care, and is included in Mr. Curling's table" (*British Medical Journal*, 1858, p. 845). "A second was under my own treatment."

In that case—from the rapid diminution in the size of the sinus during the short time that the infant was under observation, and the fact that while the fæces were passing through the natural channel the unnatural one remained clean—I have little doubt that it was already obstructed in some part of its extent and would soon become quite obliterated. In the third case, of which I have the notes, the unnatural opening did not close, and at the age of two years and nine months I undertook an operation, much resembling that for ruptured perinæum in the adult, in order to close it. This, however, proved unsuccessful, and it was repeated, but equally unsuccessful, at the age of five years. At this latter date, however, the end of the gut had so far descended that, although the openings of the rectum and vagina were in immediate contact, they could not be said to form a single opening. In fact, the parts exactly resembled the slighter cases of ruptured perinæum after delivery, the power of retaining the fæces being complete. It seemed to me desirable, however, to attempt to provide a more solid perinæum, and although I was baffled in this attempt for a time, I believe that when the parts are larger the operation will become more feasible.

CASE XXXVI.—Dr. John T. Sharpless reported the case of an infant three weeks old. He introduced a sharply curved trocar and pushed the stylet through the "closing membrane." This required great force. The opening thus formed was enlarged to the size of a goose quill by a bistoury, and a tent was used. The patient was instructed to withdraw the tent when the patient was about to have a movement of the bowels, which could always be foretold by inclination to strain. The object intended was to dilate the opening by tents, but this plan was found unavailing, and with a bistoury he divided a ledge of flesh which directed the fæces too far forward, and the whole passage was thus enlarged, forming an unobstructed outlet of natural size. I now introduced a piece of the largest stomach tube, two inches in length, and extending far above the opening into the vagina. This tube was wrapped with bougie plaster to a considerable size, opposite the forward passage, to prevent any matters going that way. This was withdrawn every day when no disposition to stool existed, and cleaned and immediately returned. The bowels were kept laxative by castor

oil and the fæces all passed through the tube. The irritation of the foreign body soon subsided, the tenesmus disappeared, and in two months the opening through the recto-vaginal septum was closed.

The tube was now left out several hours every day, so that any sphincter that might exist should be called into action. In a short time a natural contraction seemed to take place; the edges of the wound became callous and cicatrized, and in four months the child was perfectly well, presenting such an appearance that no person ignorant of the case could, upon the most minute examination, discover that any malformation had ever existed. (*Lancet*, 1826, vol. iii, p. 112.)

CASE XXXVII.—Mr. Bryant operated upon an infant four months old. The stools had been small and scanty, and the site of the anus was marked by a slight elevation. A curved instrument, having a button-shaped extremity, was passed through the fistula and made to pass down the bowel so as to push forward at the small elevation just mentioned. Mr. Bryant then carefully dissected down to the bowel and, having incised it, stitched its cut edges to the margins of the perineal wound.

On the evening of the day following the operation a motion was passed through the anal opening. On the fifth day a dose of castor oil was required. The child continued to take the breast well, but was restless at night. She was discharged on the tenth day. Three months later the following note was taken: The artificial anus keeps open, being daily dilated by the insertion of a sea-tangle tent. At times some fæces pass *per vaginam*, but the bulk comes through the artificial anus. (*Lancet*, June 3, 1871, p. 145.)

CASE XXXVIII.—In consultation with Dr. Owen Rees and Mr. Spencer Wells, Dr. T. B. Curling saw a patient, twenty-four years of age, who had a recto-vaginal fistula. The anus had been established at birth, but the opening into the vagina persisted. The barrier formed by the perinæum was divided, when it was discovered that there was a double vagina and a bifid uterus. The rectum opened only into the right division of the vagina. The operation failed from the passage of a mass of hardened fæces. (Curling. *Observations on Diseases of the Rectum*, 4th edition, Lindsay & Blakiston, Philadelphia, 1876.)

CASE XXXIX.—Dr. Golliez was called to see a child in consultation with Dr. Hoffman for abdominal pain. They found that the fæces passed by a very narrow opening from the rectum into the vagina. Incision made on a curved director in the usual manner. “*Une mèche cératée*” was introduced into the wound, and the child recovered without further trouble. It was entirely relieved of the abdominal pain. (*Revue médico-chirurgicale de Paris*, December, 1851, p. 370.)

CASE XL.—Rizzoli operated in the following manner on three cases: An incision including the areolar tissue and skin along the center of the perinæum, from the posterior commissure to the coccyx. The rectum is carefully separated from the vagina, and is fixed by suture near the coccyx. The wound, which is now above the rectum, is reunited by suture. The first case was done on a child of nine months in 1856. In 1864 Rizzoli saw the girl, and she had perfect control even when the stools were liquid. He operated on three other cases with such modifications as were rendered necessary by different conditions, such as a contracted passage and a dilated bowel. One was an infant of twenty six months, another an infant of seven-months, another a girl fourteen years of age. In all three the result was satisfactory. (*Clinique chirurgicale*, traduit de l'italien, p. 452. Curling.)

CASE XLI.—Curling reports the case of a woman twenty-eight years of age. She had been married four years, and her husband was unaware of her deformity. (*Observations on the*

Diseases of the Rectum, p. 211, Lindsay & Blakiston, Philadelphia, 1876.)

CASE XLII.—Curling speaks of the examination of a child, aged four years, who died a month after the operation for an artificial anus. A very dilated and hypertrophied rectum fully proved to him that an impediment had existed during life. (*Opus citatum*, p. 211.)

CASE XLIII.—Aveling has reported a very interesting case of this malformation in which, after a series of operations, a very brilliant result was obtained. The malformation remained undetected until the child was five weeks old, when Sir Prescott Hewitt operated by making an opening at the natural situation, and attempted to close the vulvar orifice by caustic, without success. At the age of seventeen she came under the care of Dr. Aveling, and he endeavored to close the vulvar anus by plastic operations. In the first instance this object was defeated by a mass of hard fæces, which tore away the sutures. A second operation of similar nature proved more successful, the opening being reduced to the size of a goose quill. A third operation was performed, a small cylindrical speculum being introduced in the artificial anus to insure the exit of flatus by this route, and so to keep the wound at absolute rest. The result of the operation was completely successful in shutting off the intestinal tube from the vulva. As hardened fæces still accumulated in the diverticulum, which existed in front of the artificial anus, and as this portion of the gut was unable to evacuate its contents, a still further operation became necessary for its obliteration. (*Lancet*, Dec. 20, 1884, p. 1085.)

CASE XLIV.—Howard Pinckney. Patient, eight months of age, was a small, thin child. Mother stated that the child had never had a free discharge from the bowels, and it is only by great effort that a small threadlike portion of fæcal matter is forced through the vagina. There was no evidence of anything that resembled an anus. The skin between the ischiatic tuberosities, vagina, and coccyx was distended and smooth, with the exception of a raised ridge or rhaps extending from the fourchette to the coccyx. A communication was discovered between the vagina and rectum. It was very small—only sufficiently large to admit the large-sized probe. Assisted by Dr. R. F. Weir, he passed a probe into the rectum, and it could readily be felt through the perinæum. Incision made. Rectum partly clogged with impacted fæces. These were removed, and the rectum expelled a large quantity of fæcal matter. The bowel was washed out and stitched to the margin of the skin with silver sutures. The next day the sutures had torn out, and the rectum retracted into the wound. He made no attempt to apply other sutures, but merely removed those present, and kept the opening distended by means of the finger and dressing forceps, with the occasional aid of a bougie, almost daily for two weeks. At this time the wound had almost healed and was lined by smooth and shining membrane, and the open anus was sufficiently large to admit a No. 2 rectal bougie. There also seems to be a tolerably well formed sphincter developed, which kept the external opening closed, and would grasp the finger when introduced. No attempt was made to close the recto-vaginal fistula. (*Medical Record*, 1867, p. 223.)

CASE XLV.—J. H. Pooley. Infant three weeks old. Opening was within half an inch of the vagina, and was so small that it had to be sought with a sound. Operation advised, but not consented to until five months later, when the child, having had no passage for four days, despite cathartic medicine, and seeming very ill, Dr. Pooley operated. Incision made with the guidance of a probe in the usual manner. It was then deemed impossible to bring down the edge of the mucous membrane, which could be distinctly felt, and stitch it to the integument. It was determined to trust to the uncertain expedient of main-

taining by dilatation the patency of the opening. The child died three days later from capillary bronchitis. (*American Journal of Obstetrics*, vol. iv, p. 676.)

CASE XLVI.—Osterlob. The patient was ten weeks old. The anus was situated between the frenulum and hymen. The operation was done after the method of Dieffenbach. (*Archiv für Gyn.*, Bd. viii, p. 565.)

CASE XLVII.—Frommel. The age of the patient was twenty-one years. There was no perinæum. The anus was situated at the posterior commissure. Two fingers could pass into the anus. There was incontinence of fæces. Operation after Lawson Tait. Sânger flap-splitting method. (*Münch. med. Woch.*, 1890, No. 38.)

CASE XLVIII.—L. Pincus. The patient was seven years of age. She had control over the bowel except when the movements were loose. There were two communications with the vagina—one above the hymen and the other, surrounded by muscular tissue, was situated below this membrane. There was a small depression at the usual situation of the anus longer anteriorly than posteriorly. Gradual dilatation of the sphincter vaginae was practiced, and an attempt was made to close the other opening by the use of nitrate of silver. (*Samm. klin. Vort.*, N. folge No. 80.)

CASE XLIX.—Himmelfard. Patient was fourteen years of age. The anus was situated between the frenulum and hymen, and there was a good sphincter. No mention of condition at site of natural anus. No treatment, as patient had complete control. (*Arch. für Gyn.*, B. 5, 42, Heft 2, p. 372.)

CASE L.—Dr. Kled Abel. The patient was twenty years of age. The anus was situated near the frenulum. Had movements of the bowels every eight days and then there was a sudden evacuation of contents. No treatment. No mention of appearances at usual site of anus. (*Arch. für Gyn.*, B. 38, Heft 3, p. 493.)

CASE LI.—Koffer. No more accurate description than left-sided colotomy after trying to find the end of the rectum by resecting the coccyx. The patient was a newly-born infant.

Condensing the histories of these cases was a tiresome task, but I gratefully express my indebtedness for the admirable work of Bodenhamer, from whom I have freely drawn for the early histories.

In studying this list of cases, which comprises most of those on record, the investigator is surprised to find it so small. That the malformation is a very rare one is proved by the fact that out of sixteen thousand cases of obstetrics occurring under Collins at the Rotunda Hospital, only one case of vaginal anus was noted. Bednar saw the case but once in seven thousand one hundred and fifty-four girls in his foundling asylum, and Winckel does not recall a single case among the twelve thousand children who were under his care while director of the Dresden Hospital. But while the whole number of reported cases is small, there are very few which record a satisfactory cure later than a few months after the operation, a time inadequate to determining whether or not the relief will be permanent. I am certain that many of the cases reported as cured a few weeks after the operation died much sooner than if they had been left to Nature. I do not refer to the immediate effects of the operation which in the pre-aseptic days was

an important matter, but to results which must follow from trying to keep a canal whose walls are composed of scar tissue from closing up.

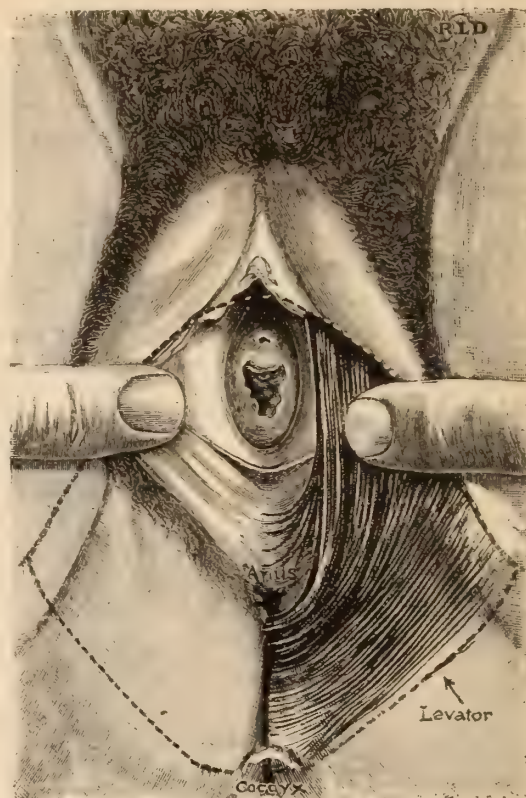


FIG. 4.—The levator is represented diagrammatically. It is, of course, much farther from the skin than it appears in this illustration. The point immediately below the anus is where the muscle should be pierced, and the rectum drawn through and sewed to the sides to form an artificial sphincter. [R. L. Dickinson.]

INDICATIONS FOR THE OPERATION.—There are so few cured cases that it is easy to explain the attitude of conservative men toward operative procedure. It is important to classify the cases so that we may determine which are fit for operation. It is convenient to divide the cases into two

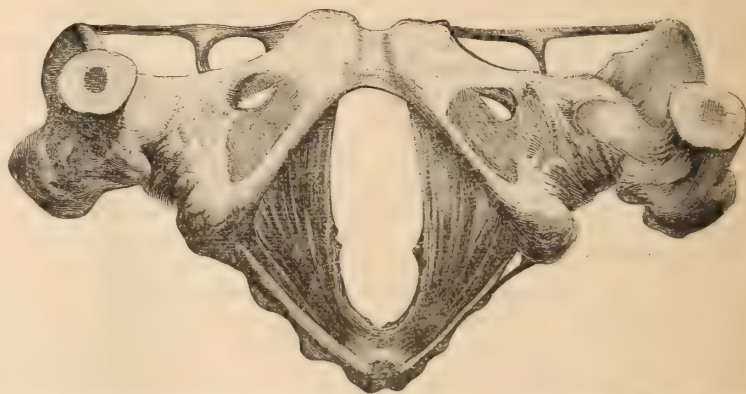


FIG. 5.—This figure and the next one are representations of the levator ani muscle, with which all gynæcologists are familiar by sense of touch. [R. L. Dickinson.]

classes. The first class comprises those patients who have control, and the second class includes those patients who pass their fæces involuntarily. The first class is not large in number, and if the patient will take precautions to pre-

serve cleanliness, and if the opening is large enough to pass formed fæces, I would not advise operating. A douche after each movement will in some cases prove sufficient to keep the patient comfortable. If such precautions are neglected, the mucous membrane of the vagina will become excoriated and abscesses may form in the connective tissue. If, in spite of this advice, the patient should still desire an operation, I think the results are sufficiently good and the dangers under sufficient control to warrant us in complying with her request.

The second class, or those who have no control, includes the great number of cases. Most of them are recognized shortly after birth, and unless the opening is so small that it obstructs the passage of fæces, nothing need be done until a later time. Fæcal matter in healthy young infants is quite unirritating, but as the character of their food changes it may cause great trouble, as it did in my case. For this reason careful attention should be given to the diet. It is easier to mold the tissues after the child is fifteen years of age than before this time, but it is not necessary to wait on this account.

THE DANGERS OF THE OPERATION.—In considering the dangers of the operation we must not forget that all of the fatal cases occurred in a day before aseptic surgery was understood. The operation which I am about to describe is not more dangerous than that used to restore a ruptured sphincter. It is used particularly in those cases where there is no control. In cases where the patient has control and it is necessary to free the bowel for some distance there is more risk. A number of deaths have been recorded, but with the better technique of to-day the risk is no longer great if the patient is healthy.

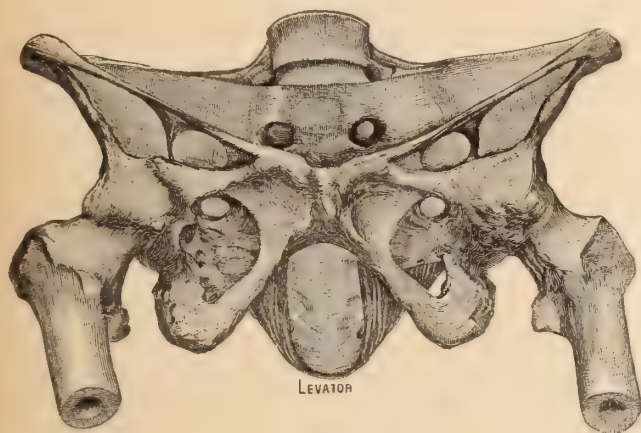


FIG. 6.

THE OPERATION.—It is stated that M. Vicq d'Azyr * suggested the division of the posterior wall of the vagina below the opening, together with as much of the subjacent tissues as would admit the introduction of the cannula, and Dr. Barton, of Philadelphia, put this idea in practice. The operation growing out of this suggestion has undergone many modifications. Perhaps the most important step in its evolution was made by Dieffenbach when he

freed the rectum and drew it down to the skin. This had been done by Amussat in 1835 after operating on a case of imperforate anus and rectum, and is an essential step to the formation of a permanent canal. While almost every operator has introduced some variation in method, and a

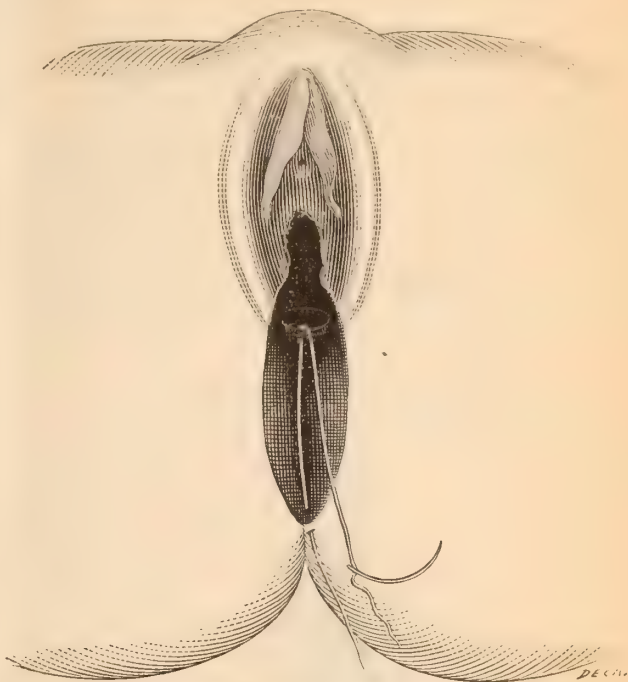


FIG. 7.—The rectum is to be drawn to the skin by one stitch.

mass of suggestions have been recorded, I shall confine my description to that operation which seems theoretically, and has proved practically, to be the best.

First Step.—After introducing a probe into the fistula from the vagina, and bringing out the point of this instrument just above the levator ani muscle, the tissue above the probe is divided. All previous descriptions of operations indicate that the point where the skin is to be pierced should be the natural site of the anus, or that it should be at a point near the coccyx. Nature, however, indicates the exact position, and this is in front of the lower part of the sling formed by the fibers of the levator ani muscle. (See Figs. 4, 5, 6, and 7.) The location of this muscle should be ascertained, if possible, before the patient is etherized. When the tissues above the probe have been divided the condition shown in Fig. 3 is present. The rectum is seen divided and may be slightly freed by a few strokes of the knife. Thus far the description of the operation is like that usually given except that we have pointed out an infallible guide to mark the backward extent of the incision. It must be remembered, however, that this landmark only indicates the backward limit for the plane in which it is found; the skin is divided about an inch farther back.

The next thing to be accomplished is to draw the rectum to the skin, and here one is very apt to make an error. The rectum should be fastened to the skin without strain. Professor Winckel states that the sutures "should be left until they cut through." I do not agree with him, for if proper ligature material be used, and the strain is not too

* *Nouveaux éléments de médecine opératoire*, tome ii, p. 979, Paris, 1832. Quoted by Bodenhamer. *Opus citatum*, p. 115.

great, the sutures will never cut out but will become imbedded in the tissue, as is the case in all plastic work. On the second day after I first operated I found that the strain had been too much for my stitches, and I was obliged to cut those at the sides and place a new one in the middle of the wound. This entirely removed undue tension. If the tension had then been too great I would have drawn the rectum down as far as possible without strain, trusting to a future operation to reach the skin. By careful attention to this caution we can never fail to gain something, and it is only a question of time when the rectum can be securely anchored to the skin. It is important to bear in mind that if union of the rectum to any point of the skin is secured, no matter to how slight an extent, it is not a difficult matter to bring the remainder of the circumference of the bowels in the desired position at

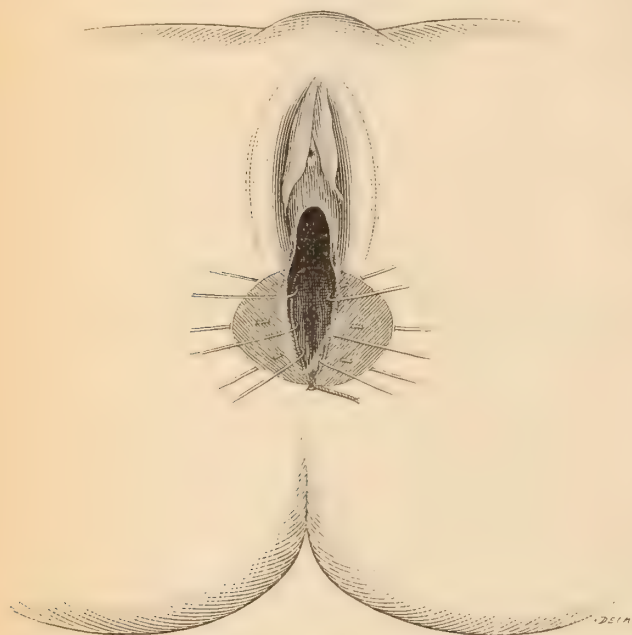


FIG. 8.—The stitch shown in the preceding illustration is tied, and lateral stitches have been inserted.

a later period. The figures below will give an idea of the importance of not attempting to attach too much of the rectum at once.

Having united the rectum to the skin, the raw surfaces left at the side are sewed together with stitches passed in the manner indicated by Fig. 8. Fig. 9 shows the first step of the operation complete. The rectum opens below the vagina and no raw surfaces have been left. The patient can be on her feet in ten days.

Second Step.—The second step of the operation consists in forming that part of the pelvic floor which is usually known as the perineal body. It will differ very much in different cases as the distance between the abnormal opening and the urethra varies. It can not be properly done except by an operator who is a good plastic surgeon.

Third Step.—This step suggests itself on theoretical grounds. I have not yet had the opportunity to put it into practice. I shall endeavor to split the fibers of the levator

ani muscle, as has been done with the rectus muscle in gastrostomy. If this is practicable, we ought to obtain a fairly good sphincter. It is not unlikely that those cases

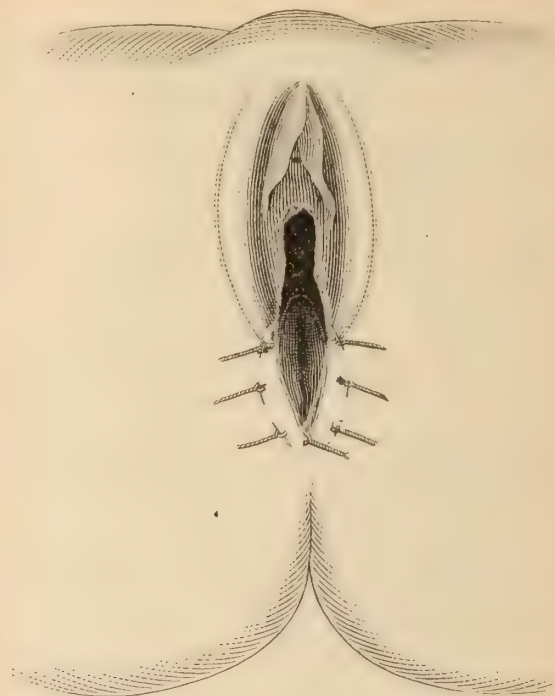


FIG. 9.—This shows the completion of the first operation. All raw surfaces have been united.

which have gained control after operation have done so by having the muscle, which has been divided, grow about the rectum.

ACTINOMYCOSIS OF THE LIVER.

By WILLIAM MOSER, M. D.,

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EVER since Langenbeck, and especially Bollinger, Israel, Ponfick, Johnne, Hahn, Harz, and others drew attention to the ray fungus in man and animals much valuable literature has been added to this subject. Although the exact botanical position of the fungus is not yet determined (according to Boström, it ought to belong to the class of *Cladothrix*), there can be no question as to its pathological significance. Its place of predilection is the lower jaw, gaining entrance through some decayed tooth, producing tumors, multiple abscesses, and fistulæ. In this region it may be confounded with sarcoma. The infection takes place probably through nourishment and possibly by inhalation. Actinomycosis of the jaw may produce metastatic abscesses and other changes in the internal organs which usually prove fatal. According to von Jaksch and Roser, the condition of the throat known as angina ludovici may in some instances be dependent upon the ray fungus. At any rate, the suggestion may not be amiss to examine these cases under the microscope a little more closely. Some cases of so-called peripleuritis or empyema, as well as cases of broncho pneumonia and obscure forms of intestinal mycosis, are really cases of actinomycosis (Chiari). In fact, its

pathological manifestations in the various internal organs are very apt to be misleading, unless a careful microscopical examination is made of the pus and tissues. Multiple abscesses may develop in the various organs, as well as parenchymatous changes, the picture reminding one of some cases of pyæmia. In an autopsy recently occurring at St. Catherine's Hospital the liver was principally involved, and it is to these changes that I wish especially to refer. There was no affection of the jaw in this case, it being difficult to determine where the primary infection took place. There was broncho-pneumonia of the right lower lobe, with fibrinous deposits on the pleura and subdiaphragmatic abscess and parenchymatous nephritis. A few abscesses could be seen in the spleen. The liver was studded with innumerable miliary abscesses. A few large abscesses could be seen here and there. They had a resemblance to tubercle nodules, from which puriform or cheesy material could be pressed, containing minute yellowish granules. Fistulous tracts had been formed in different parts of the organ. The secondary inflammation produced by the invasion of the fungus was that of the hobnailed or cirrhotic liver. The parenchyma was almost destroyed. Under the microscope the picture is as varied as the gross pathological manifestations, the only characteristic being the fully developed ray—*i. e.*, filaments radiating from a common center, giving an appearance which has been compared to the "sunflower or aster." The club-shaped extremities of these filaments or mycelia are seen in a variety of leptothrix, hence they are not characteristic of the *Actinomyces fovis*. In one specimen I could see what I regarded as the primitive stage of the ray or "aster," the appearance much resembling that of the common starfish (*Asterias rubens*). The pus when examined fresh would at times show countless numbers of mycelia, threads, and micrococci, which were frequently aggregated in large masses. Fat cells were abundant, as well as cells resembling Gluge's corpuscles, giant cells, and polymorphous connective-tissue cells—the products of inflammation—the fibroblasts of Ziegler; and, lastly, large numbers of small round cells, especially abundant in the region immediately surrounding the ray. According to Dunker and Herting, there is a variety of ray fungus occurring in the pig, the place of predilection being the muscular system, especially the diaphragm, intercostal muscles, etc., in this respect resembling the trichinæ, and like them, as well as the *Cysticercus cellulosæ* (*vide* article by the writer, *Medical Record*, September, 1893), having a special tendency to undergo calcification. The actinomyces is a dangerous fungus, and much can and ought to be done in the way of prophylaxis.

101 BEDFORD AVENUE.

Ectrodactylism and Syndactylism.—In the *Bulletin* of the Paris Anthrological Society for March, 1894, there is a paper by Dr. Maclaure and Dr. Bois, containing a description of examples of ectrodactylism and syndactylism. The right foot and the two hands have the form of a fork, or resemble lobster-claws. The text has the details of the peculiar osseous and muscular distributions and relations, which are made clear by excellent illustrations.

ON THE IMPORTANCE OF THE EARLY RECOGNITION OF CERTAIN DISEASES AND CONDITIONS OF THE EYE

BY THE GENERAL PRACTITIONER,
WITH SUGGESTIONS REGARDING THEIR MANAGEMENT.*

By H. D. W. CARVELLE, M. D. (HARV.),
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THE object of this paper is to offer a few suggestions to the general practitioner so that he may better determine what diseases, injuries, and conditions of the eye he should treat, and what cases to send to the ophthalmologist. Until within a few years instruction in errors of refraction and diseases of the eye were not considered necessary by the leading medical schools, and many students are now graduated without a knowledge of the use of the ophthalmoscope, and are unable to diagnosticate the ordinary external diseases of the eye. That a more thorough knowledge of the eye is not required is injurious to the patient, the physician, and the ophthalmologist. The patient often suffers by not being sent to the specialist in time because the physician does not recognize the gravity of the case, and thereby loses his confidence; and when he is sent to the ophthalmologist, or drifts into his hands, it is often too late for him to be of any service.

It has been my experience that nothing redounded more to the credit of the physician when he was called upon to treat an eye case that he did not quite understand than to frankly admit it to the patient and send him to the ophthalmologist; and, on the other hand, he would incur their everlasting condemnation if he persisted in treating a case that he did not understand, or that turned out badly, or sent to the specialist when it was too late.

To illustrate I will cite the following case:

Mrs. C., aged fifty-seven, was attacked suddenly with severe pain in and around the right eye, and in less than twenty-four hours she was blind. When I saw her twelve days later she was still suffering with severe pain in the eye. There was no perception of light, the pupil was dilated, the cornea was steamy in appearance and anæsthetic, the anterior chamber was shallow, the optic nerve deeply cupped, and the eyeball hard from increased intra-ocular tension. It was a typical case of acute glaucoma. The family had suggested that a specialist be summoned, but the attending physician said "it was not necessary until the inflammation subsided," and persisted in the use of atropine, which was the worst thing he could have used, thinking it a case of iritis. The patient was hopelessly blind, and nothing could be done for her at that late day but relieve her pain; while if the disease had been recognized at once and eserine used, or, that drug failing, an iridectomy or sclerotomy been performed, she would probably have saved her sight and been spared much unnecessary suffering. As it was, she suffered severely, lost the sight of her eye, and the physician lost the confidence of the family and was not employed by them afterward.

Familiarity with the use of the ophthalmoscope is an important acquisition to the general practitioner, as it will enable him to recognize intra-ocular diseases—as cataract, chorioiditis, retinitis, glaucoma, and diseases of the optic

* Read before the New Hampshire Medical Society, June 19, 1894.

nerve; but it is not absolutely necessary, as there are objective and subjective signs which will indicate the cases he should treat, and those he should refer to the ophthalmologist.

The extensive ground I am obliged to cover precludes the possibility of devoting more than a passing notice to any one subject in a paper of this kind, so I will call your attention only to the more important ones.

Injuries of the Eye.—In wounds of the lids involving the margin, always bring the edges into perfect apposition by a suture on the conjunctival side, in the margin and through the skin on the outside; otherwise an unsightly notch will remain. Wounds of the conjunctiva should be brought together with fine sutures, and, in case the sclera is lacerated, it is usually sufficient to suture the conjunctiva over it. Of course strict antisepsis should always be observed.

In penetrating wounds of the eye and where foreign bodies have entered the eyeball, the case should be referred to the ophthalmologist on account of their liability to cause cataract, loss of sight, and sympathetic ophthalmia.

I have seen many cases that were hopelessly blind in both eyes from an injury to one that, if they had had proper treatment and prompt removal of the injured eye at the outset, would be in the enjoyment of good sight in one eye. The following is a case in point:

Mr. G. C. W., seventy-seven years of age, while splitting kindling wood, a splinter struck the left eye, causing immediate loss of sight. The right eye became affected in a short time, and in four months he was blind in that eye. He was treated by his family physician. When I saw him nine months after the injury, both eyes were completely disorganized, and he was still suffering with pain in the right eye. If this man had had the injured eye promptly enucleated at the time of the injury, or before sympathetic ophthalmia settled in the other one, he would to-day have one good eye, instead of which he is hopelessly blind.

In all penetrating wounds of the eye, particularly in or near the sclero-corneal junction, there is danger of sympathetic ophthalmia, and when this disease is once established the case is usually hopeless.

When called upon to treat an inflamed eye, always look for a foreign body either on the cornea or under the lids.

Not long ago a case came to me that had been treated off and on for six months for inflammation, in which the patient had a foreign body imbedded in the cornea that had been overlooked. I also saw a farmer within a few weeks who had a piece of a husk of grass seed on the cornea for several months, who had consulted a number of medical gentlemen and had used various washes, but was not relieved until it was removed. The cornea, conjunctiva of the eyeball and of the lids should be inspected through a convex lens of two and a half or three inches focus by a strong light, and by oblique illumination in every case of inflammation of the eye. By having the patient look down, the upper lid can be everted and the parts inspected, while by looking up, the lower *cul-de-sac* can be exposed to view.

Before removing foreign bodies from the cornea it is usually better to instill a few drops of a two- to four-per-

cent. solution of cocaine to deaden its sensibility. If the foreign body is on the surface, it can usually be dislodged by a cotton-tipped probe, but if imbedded in the corneal tissue, a blunt needle or spud should be used, and great care should be observed not to allow the instrument to go through the cornea and cause cataract, as it is only one twenty-eighth of an inch in thickness in its center.

Diseases of the Conjunctiva.—In ordinary conjunctivitis there is swelling and redness of the conjunctiva, the superficial vessels are engorged, and there is more or less mucoid secretion that collects in the inner corners of the eyes. The eyeball is not tender, the reaction of the pupil is normal, and there is no dimness of vision except momentarily when a shred of mucus passes over the cornea. The redness is more marked in the lids and shades off toward the cornea. The treatment consists in the use of mild astringents, as boric acid two to four per cent., or alum one per cent., instilled into the eyes three or four times a day.

In children, and rarely in adults, we have a form of conjunctivitis which is characterized by the appearance of small pustules on the conjunctiva near the margin of the cornea; there may be one or several. The usual causes are gastro-intestinal disturbance, nasal catarrh, and scrofula, and they are treated by regulating the diet, having the patient eat only plain, easily digested food, avoiding all sweets, pastry, nuts, etc. A tablet of rhubarb and bicarbonate of sodium, each two grains and a half, after meals, is an excellent remedy to regulate the stomach and bowels. Locally have the eye bathed freely several times daily with a warm two-per-cent. solution of boric acid, and either dust on the pustules daily a little finely powdered calomel—but be sure that the patient is not taking the iodide of potassium—or you may apply a small piece, twice as large as a pin head, of an ointment of the yellow oxide of mercury of the strength of one grain to one drachm of vaseline into the conjunctival sac and gently rub the lid over the eye.

It is the fashion among the laity and even by many physicians to call every eye that is red “pink eye,” which is equivalent to saying that it is not a serious thing and does not require any attention, and I have seen many cases where the sight was permanently injured by adhesion of the iris to the anterior surface of the lens that had been pronounced “pink eye” by the family physician, and the patient had not sought the specialist until sight began to fail or the eye was painful. Pink eye is a popular term for an acute contagious mucopurulent conjunctivitis of horses, characterized by a pink appearance of the eyeball; but it should not be applied to the human race, as it does not mean anything, and serious diseases are often pronounced “pink eye” and treatment neglected until the eye is permanently impaired. I have a case now under my care that was treated for “pink eye” with strong astringents for a week by the family physician before I saw him, and his eye is nearly useless from posterior synechiæ and plastic exudation in the pupil.

Every case of eye disease should be thoroughly examined and a diagnosis made. If you are unable to make a diagnosis and there are serious symptoms, the case should be sent at once to an ophthalmologist. Another common

error that many physicians make is to call a simple redness of the lids associated with a feeling of gravel in the eye granular lids, and to use harsh astringents, as a strong solution of sulphate of zinc, and the crayon of copper, when a mild astringent is all that is necessary, as the case is often a slight conjunctivitis, the result of an error of refraction.

In chronic granular conjunctivitis the palpebral surfaces of the lids are red, rough, and thickened from the presence of sago-like bodies in the conjunctiva. The eyeball may become secondarily affected, as by corneal ulceration and pannus. In the latter condition the upper half of the cornea becomes opaque and red from the development of blood-vessels in its substance. The treatment consists in using astringents, such as zinc sulphate two grains to an ounce, or cuprum sulphate one grain to an ounce, two or three times a day, and applying to the palpebral surface of the lids the crayon of alum or copper or the glycerine of tannin ten grains to thirty grains to an ounce; and in some cases a two-per-cent. solution of nitrate of silver, applied to the lids and washed off with water after a few moments, to prevent its coming in contact with the cornea, is an excellent remedy. When pannus exists, atropine should always be used to prevent iritic complications. These cases are chronic and obstinate, and one is obliged to go through the whole list of remedies often before the case is cured. Latterly compression, squeezing out the contents of the granules with a specially made forceps, is practiced with success in some cases.

Diseases of the Lacrymal Canal.—These are usually caused by an extension of inflammation from the conjunctiva, or from the nose resulting in obstruction in the duct. Occasionally the puncta become occluded, when all that is necessary is to dilate them, and the tears will find their way into the nose. When there is obstruction in the duct, making a vertical nick in the punctum and passing probes of gradually increasing size once in four or five days will usually result in a cure. When the sac is inflamed it is necessary to syringe out the canal with an Anel's syringe containing a saturated solution of boric acid or other mild astringents. If the obstruction is in the nose, it must receive appropriate treatment.

Lacrymal abscess is of frequent occurrence in cases where obstruction and inflammation of the sac has previously existed. If called to a case where there are pain, tenderness, and swelling at the inner canthus, where obstruction previously existed, where the swelling is so great as to prevent slitting up the canaliculus into the sac, and pus exists, a free vertical incision should be made over the sac and hot antiseptic applications made until the swelling goes down; then probes should be passed to overcome the obstruction or a fistula will result.

Ophthalmia Neonatorum.—The conjunctivitis of newborn children is one of the most serious diseases that you are called upon to treat, and one that causes more blindness than any other disease of the eye. This disease shows itself a few days after the birth of the child by more or less swelling of the lids and purulent or mucopurulent discharge. In some cases it is in a mild form,

only requiring cleanliness and a mild astringent, as boric acid, to check it. In other cases it is so very severe that the lids swell enormously and the cornea sloughs within a few days from constriction, and interference with its nutrition. When called to see a case of this kind, do not be satisfied with trying to see the cornea, but with a pair of retractors separate the lids and get a good view of the cornea. Thorough antiseptics is absolutely necessary—cleansing the eyes with a solution of the bichloride of mercury (1 to 5,000) every hour at least, and applying astringents to the conjunctiva of the lids according to the severity of the case. If the cornea is not implicated, brushing the palpebral conjunctiva with a one-per-cent. nitrate-of-silver solution once a day and washing it off with water is usually as strong a remedy as is necessary. In addition, a one-per-cent. solution of alum may be dropped into the eye two or three times a day. If there is a corneal ulcer near the margin, use a one-eighth-of-one-per-cent. solution of eserine sulphate three times a day to prevent prolapse of the iris in case perforation of the cornea takes place. If the ulceration is near the center, use a one-fourth-of-one-per-cent. solution of atropine sulphate two or three times a day.

There are some cases where the discharge is very copious and the swelling so great that stronger solutions of nitrate of silver are indicated, as from two to four per cent., but great care must be exercised not to allow it to come in contact with the cornea. The cornea should be inspected every day and complications met as they arise. I would also add that if antiseptic douches were freely used in every lying-in case before and during labor, and the child's eyes carefully cleansed with bichloride of mercury (1 to 5,000), we would see very few cases of purulent conjunctivitis in newly born children.

Diseases of the Cornea.—When the cornea is inflamed it loses its transparency. By oblique illumination and looking at the cornea from different angles there is usually no difficulty in seeing a corneal ulcer. The eye is more or less painful, and photophobia is usually a very marked symptom. The pupil reacts to light and shade. In children phlyctenular keratitis, which consists of one or more small ulcers on the cornea, is one of the most common diseases of the eye. Photophobia is very marked, the child often burying its face and avoiding the light until very late in the day. There is usually a papular eruption around the eyes and more or less rhinitis. Atropine and yellow oxide of mercury are usually the best local remedies for these cases. When photophobia is very marked a one-half-of-one-per-cent. solution of hydrochloride of pilocarpine dropped into the eye three times a day gives great relief. The child should have good air, exercise, the diet should be plain and nourishing; internally quinine, iron, and arsenic, and in cold weather cod-liver oil, are the proper therapeutic measures. If rhinitis is prominent, Seiler's solution used in an atomizer produces good results.

In corneal ulcer with hypopyon, pus in the anterior chamber, atropine should be used if the ulcer is central and eserine when it is near the periphery of the cornea. A hot two-per-cent. solution of boric acid should be applied

freely every hour and a protective bandage. Pyoctanin, 1 part to 1,000, instilled into the eye three or four times a day clears up the pus in a marvelous manner in some cases. If the amount of pus is large, half filling the anterior chamber, paracentesis will have to be done, being careful not to wound the lens with the instrument, or cataract will result. In the interstitial form of keratitis atropine should always be used, as the iris sooner or later becomes inflamed and adhesions form. Potassium iodide or some of the salts of mercury should be used, as the cause is always due to congenital syphilis, and is associated with a peculiar conformation of the teeth, first described by Hutchinson. The cornea is usually of a uniform ground glasslike opacity; occasionally it becomes red from the development of blood-vessels in its structure. After the inflammatory stage is passed, yellow-oxide-of-mercury ointment assists wonderfully in clearing up the opacity.

Diseases of the Iris.—The most important disease of the iris is iritis. The more common causes are syphilis and rheumatism. It is a very serious disease, and the sight of a great many eyes are impaired and often lost because of a neglected iritis, or one that has not been recognized early and treated properly. The symptoms are pain in the eye and brow, tenderness of the eyeball, photophobia, lacrymation, and dimness of vision. There is a ring of redness around the cornea which shades off toward the lids. The redness is caused by the engorgements of the deeper vessels, while in conjunctivitis the superficial vessels are congested. The aqueous humor is cloudy, the pupil small, sluggish, or immovable, and if a mydriatic is used it dilates irregularly, as portions of the margin of the pupil have become adherent to the anterior capsule of the lens. If only one eye is attacked there will be a well-marked difference in the color of the iris; it will have lost its luster and will appear darker than its fellow. Atropine is the sheet anchor in this disease, and it should be used early to prevent adhesion of the iris to the anterior surface of the lens, and a half to a one-per cent. solution should be instilled into the eye often enough to keep the pupil thoroughly dilated during the whole course of the disease.

A precaution that should always be observed in the use of atropine in patients over forty years of age is to watch the tension of the eyeball for fear that glaucoma may be brought on by its use. Employ it often enough and long enough only to keep the pupil dilated while the inflammation of the iris lasts. Hot applications are very grateful to the eye and may be used *ad libitum*. In the rheumatic form of the disease full doses of salicylate of sodium often relieve the pain in twenty-four hours, and it should be continued as long as necessary.

When syphilis is the cause the salts of mercury are indicated, and the sooner the patient is brought under the influence of the drug the quicker will the disease be overcome. I have seen a great many cases of iritis that have been treated for conjunctivitis and where strong astringents were used until the eye was permanently damaged by the formation of adhesions; but if the distinguishing characteristics of each disease are borne in mind the mistake ought never to occur.

Glaucoma.—This is a disease that if not recognized early will cause blindness in acute cases in a few hours sometimes. The symptoms are pain in and around the eye, coming on suddenly, often accompanied by nausea. Sight becomes impaired and increases to total blindness. Preceding the attack there may be periodical blurring of sight, diminution in the range of accommodation, and tendencies to see rainbows around the light. The appearance of the eye is very characteristic, the cornea is steamy, the pupil is large and does not react to light, the anterior chamber is shallow, there is circumcorneal venous injection and fullness of the anterior scleral veins, and a dull purplish discoloration around the margin of the cornea. All these conditions are caused by an increase in the intra-ocular fluids, rendering the eyeball harder than normal. This can be easily determined by having the patient look down, and with the tip of the middle finger of each hand on the eyeball press gently, first with one finger, then with the other, and any variation from the normal resistance can be perceived. If one eye is healthy the tension of the diseased eye can be compared with it; if not, you can compare it with your own. After a little experience it is an easy matter to discover an increase or decrease in the intra-ocular tension. With the ophthalmoscope, excavation of the optic nerve will be seen, the central artery of the retina may be pulsating, and the retinal veins are enlarged and tortuous. The treatment is half a grain of eserine sulphate, five grains of cocaine hydrochlorate, to an ounce of water, to be instilled into the eye every hour or two until the eyeball becomes softer, pain is relieved, and vision improved. If there is no improvement in twenty-four hours, iridectomy or sclerotomy should be performed without delay. This disease, as well as iritis, is often mistaken for neuralgia by the general practitioner, and in too many cases the patient is hopelessly blind before he discovers his error.

It should be borne in mind that neuralgia is not accompanied by any disturbance of vision or inflammation of the eye, while in glaucoma and iritis there are marked characteristic symptoms peculiar to each disease. Each causes pain in and around the eye, but in iritis it is more in the brow, while in glaucoma the pain may be more severe around the eye. The pupil in glaucoma is large, while in iritis it is small. In iritis the eyeball is tender and the tension is usually normal, while there is not usually tenderness of the eyeball in glaucoma, but the tension is increased. In iritis the sight becomes blurred after a few days, while in acute glaucoma vision may be lost in twenty-four hours. When called to a patient beyond middle age, who has been taken suddenly in the night with severe pain in and around the eye, with nausea and disturbance of vision, if the pupil is dilated and immovable, the tension of the eyeball increased, you may be sure that it is glaucoma and nothing else. I lay particular stress on the diagnosis of iritis and glaucoma, because I have seen many cases in which the patients have either lost their sight or it was permanently impaired, because the condition was not recognized.

Errors of Refraction.—In these days of progress and enlightenment we should not expect that patients would be

dosed with all the remedies in the materia medica for headaches when the proper adjustment of glasses is often all that is necessary to relieve them in the majority of cases; but I am constantly seeing patients that have taken every kind of a headache remedy without relief, who are made comfortable by having their refractive error corrected. It is the exception to find an optically correct eye, and under the pressure of our school system, and in the struggle for life, it is often necessary to correct even the smallest muscular and refractive errors that the patient may continue his or her work comfortably.

I have had four cases of epilepsy in young people whose fits have been stopped by correcting their refractive errors, and they have been under observation for several years. In one case there was a return of the fits during a short period when her glasses were broken. I could cite hundreds of cases from my record book, if the limit of this paper did not forbid it, that would show the part that refractive errors play in the causation of headaches and other reflex disturbances, as nausea, vertigo, etc. As to the correction of refractive errors, it should be done only by the ophthalmologist, and in young people only after a mydriatic has been used, and not as it is often done by ignorant opticians and itinerant peddlers of spectacles.

It is a very common occurrence to find people wearing concave glasses that have been fitted by an optician when the patient requires a convex glass, and many eyes are permanently weakened by improperly fitted glasses. Within a few months I have seen at least half a dozen women who were fitted with near-sighted glasses by a traveling quack, who made a specialty of everything and was highly recommended by a certain clergyman in my city, where the patients were either far-sighted or had far-sighted astigmatism. This same quack operated for convergent strabismus on the child of another clergyman, and now the child has a deviation of 30° outward and sinking of the caruncle which will disfigure her for life.

If a patient complains of headaches, poor sight, and pain in the eyes, the probability of a refractive error being the cause is now generally recognized; but if the sight is normal and there is little or no discomfort in using the eyes for near work, and if the headaches are not frontal, an ocular defect as a possible cause does not usually receive much consideration. It is, however, a fact that a large number of patients who have good sight for distance and near, and are able to read and sew for hours without discomfort, suffer from neuralgic headaches that can be and are relieved by the correction of some refractive or muscular defect. The following case will illustrate the latter class of patients:

Miss D., twenty years of age, teacher, has always enjoyed good health with the exception that she has headaches since she can remember; says "her eyes do not trouble her, and that she sees perfectly well and does not want to wear glasses, but that her physician had given her everything he could think of for her headaches without affording her any relief, and had sent her to have her eyes examined." I found that she had compound hypermetropic astigmatism and corrected it after using a mydriatic, and she wears her glasses constantly and has had no more headaches.

In conclusion, I would advise in every case of chorea, epilepsy, and headaches, to have the eyes examined for muscular and refractive defects, and I am satisfied that a large percentage of the patients would find relief.

THE PREPARATION OF CATGUT.*

By WILLIAM G. BISSELL, M. D.,

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CATGUT is derived from the submucous layer of the intestine of the sheep. Owing to its source, it can be readily seen that raw gut must necessarily contain a large number of bacteria, and as sheep are especially prone to anthrax, it is possible that this germ may be present. It has been demonstrated by Koch and others that the anthrax spore, the reproductive element of the bacillus, has a greater resisting power than any other bacterium yet known or its reproductive element, and it is safe, therefore, to take this spore as the standard for tests in the sterilization of catgut.

The methods most commonly used for preparing catgut are those employing heat, chemical solutions, or the action of both combined. The application of heat is probably best carried out in the method suggested by Dr. George R. Fowler, of Brooklyn, in the *Medical Record* of August 16, 1890. He found that catgut boiled in strong alcohol at a temperature of 79° C. was sterilized in an hour or a little less. Dr. Fowler, two years later, in the *Brooklyn Medical Journal*, March number, advocated the boiling of the gut in a closed tube nearly filled with alcohol.

These methods, though good ones so far as the germicidal action is concerned, are very uncertain as to the condition of the gut after the boiling process has been completed. Alcohol itself is very little of a germicide, not affecting the anthrax spore, according to Koch, in a hundred and ten days, so that the heat in Dr. Fowler's methods is the all important factor.

If catgut is heated to a temperature of 85° C. (185° F.) in alcohol it is destroyed in a very short time. I am indebted to the J. Ellwood Lee Company, of Conshohocken, Pa., the manufacturers of the Fowler tube, for the following statement: "If catgut is boiled at a temperature a little above the boiling point of alcohol (78.4° C.) it will make the gut deteriorate in strength." This accords exactly with my own personal experience. The method of preparing the Fowler tube is as follows: The raw gut is placed in a glass tube nearly filled with alcohol and hermetically sealed; it is then heated to the boiling point of the alcohol and the alcohol allowed to boil an hour. Boiling the alcohol in a closed tube increases the pressure on the alcohol, thereby raising its boiling point, and, as this must not be above 85° C., it can be seen that there are great chances of producing a worthless article.

It is far better in the heat-alcohol method to boil the alcohol under ordinary atmospheric pressure, as this gives a constant temperature and is not so liable to mishap. Dr. C. N. Dowd, assistant surgeon, New York Cancer Hos-

* Read before the Medical Society of the County of Monroe, N. Y., June 4, 1894.

pital, in the *Medical Record* of December 3, 1892, suggests the use of an apparatus which carries out this idea perfectly, the apparatus being so constructed that the vapor of the alcohol is recondensed and is used over again.

Another common method of heat sterilization is by substituting aniline oil in place of the alcohol. This method possesses no advantages over those using alcohol, and has the disadvantage of being very disagreeable to handle and very liable to mishap, in that the boiling point of the oil is about 180°C ., and it needs constant care to see that the temperature, indicated by a thermometer immersed in the oil, does not go above the heat limitation of the gut. So much for the heat process.

The methods employing chemical agents consist mostly of carbolic acid and corrosive sublimate as the germicide, and are, as a rule, inferior to the heat-alcohol method.

With the object in view of obtaining the most satisfactory method for preparing gut, not being satisfied with the results obtained by boiling it in alcohol, about a year and a half ago, during an internship at the City Hospital in this city, I communicated with most of the large hospitals of the country, asking their methods of preparing gut and the results obtained.

Some indorsed the boiling-alcohol method, others stated that the results were doubtful, others used chemical solutions, and a few went so far as to say that catgut was no good for ligature purposes. After experimenting with most of the formulæ furnished me (requiring a period of about eight months), I concluded that gut prepared by the following formula gave the most satisfactory results, in that it rendered the gut sterile, never destroyed its texture or strength, and required no special apparatus for its completion. The method is as follows: Place the raw gut, after removing all colored silk, string, etc., in a 1-to-1,000 ethereal solution of bichloride of mercury and allow it to remain there six hours; then wind on sterilized glass spools and place the spool containing the gut in the same solution for six hours longer. Wash in pure ether and then boil in absolute alcohol at the atmospheric pressure for ten minutes, the object being to remove all traces of the bichloride.

Gut prepared by this method I have subjected to a thorough bacteriological test and found it to be absolutely sterile. Some may maintain that the bichloride solution weakens its texture; on the contrary, it hardens it, for gut prepared by this formula will remain longer in a wound before being absorbed than the same size prepared by the heat-alcohol method.

The ethereal solution overcomes the protection the oil and fat have against the action of the bichloride and your germicide has a clear field.

Silk threads impregnated with the anthrax spore and then dipped in olive oil were found to be sterile after six hours' immersion in the bichloride solution.

This method of preparing gut has been satisfactorily employed at the Rochester City Hospital, at the Whitbeck Private Hospital, and by many surgeons in their private work in this city and others.

I consider this method superior to the others in that it gives uniform results and there is no chance of mishap.

THE

NEW YORK MEDICAL JOURNAL,

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FRANK P. FOSTER, M. D.

NEW YORK, SATURDAY, AUGUST 11, 1894.

THE CONTEST WITH MORBIFIC GERMS.

IMMUNITY from certain diseases, whether natural or casually acquired, is still to a great degree mysterious, notwithstanding ingenious theories and experiments. Mr. A. D. Cooper, of London, contributes an article on the subject to the May number of the *Indian Medico-chirurgical Review* in which he discusses it from two standpoints, its nature and the conditions under which it has been observed, and the application of knowledge thus obtained to the relief, cure, and prevention of disease in man and in the lower animals.

At one time, he says, it was supposed that immunity was due to an alteration of the tissue cells, either local or general, or to the presence of certain substances of bacterial origin in the blood. Again, it was found that fresh blood and, still later on, blood-serum had the power to destroy bacteria. However, the writer says he does not intend to discuss theories, but rather to follow the line of investigation adopted by Mr. Hankin, of Cambridge, who remarks that immunity, whether natural or acquired, is due to the presence of substances which are formed by the metabolism of the animal rather than by that of the microbes, and that they have the power to destroy either the microbes against which immunity is possessed or the products on which their pathogenic action depends. He also is careful to admit the possibility of there being other factors concerned in conferring immunity.

It seems that Mr. Hankin undertook a series of experiments in order to find some constituent of blood-serum which perhaps had been overlooked by other investigators, and he found a ferment-like proteid substance, commonly known as cell-globulin, which possessed the peculiar power. He tested the action of this substance on anthrax bacilli and found that it destroyed them. But similar substances are found in animals that are not proof against anthrax; therefore something more, either in the nature of quantity or in that of quality, is necessary to account for the immunity, and this Mr. Hankin sought to obtain by studying the blood of rats. It has been observed that the blood of rats is more alkaline than that of any other animal. The susceptibility of these animals to anthrax is in inverse proportion to the alkalinity of the blood, and any circumstance that diminishes the alkalinity of the blood increases the susceptibility. In demonstration of this fact, two rats were fed, one on vegetable diet and the other on animal diet, for a period of about six weeks, with the result that the one fed on vegetable diet died and the other escaped. Similar results have been obtained by others under the same circumstances. Mr. Hankin's conclusions are, after a series of experiments, that the immunity enjoyed by rats depends upon the proteid substance, but that its

mere presence in the blood is not enough to confer immunity. It had to be shown that the substance was either more active or in larger quantity than in animals that were not protected, and this necessary proof was obtained by observing the influence of anthrax on rats, whose susceptibility diminished or increased as the blood became more or less alkaline.

With regard to the application of this knowledge, it has been observed that immunity may be either natural or acquired, and it is known that the rabbit can be protected artificially; so, the writer asks, if the rabbit, why not the horse, or notably the sheep? Artificial immunity may in time develop into natural immunity, and thus it is quite possible, he thinks, to get a breed of sheep naturally resistant to anthrax.

It must be borne in mind that man enjoys immunity from many germ diseases which certain of the lower animals are subject to; the principal thing is to find out which animal is proof against particular germs, and employ that animal, or a part of it, or a secretion of it, or something artificially prepared from it to fight those germs.

THE INHERITANCE OF CANCER.

THE influence of heredity in giving rise to cancerous disease has doubtless been overrated until within the last few years; now, perhaps, the tendency is to ignore it too absolutely. An interesting contribution to the discussion of this question, by Mr. E. H. Howlett, is published in the July number of the *Quarterly Medical Journal for Yorkshire and Adjoining Counties*. Mr. Howlett relates the following cases: A man, twenty-two years old, complained of a fullness and sensation of weight in the abdomen, with loss of appetite and constipation. A rhubarb mixture was prescribed and some general directions as to diet were given. Two days afterward, however, the author was sent for to see him and he noticed that the man looked haggard and showed some stiffness on rising from his chair. On examination, the abdomen was found to be considerably enlarged and resistant, and the pressure of the examining finger caused pain, chiefly in the left inguinal region; the liver dullness seemed to be increased, and there was evidence of a small amount of ascitic fluid. A mass was found apparently between the bladder and the rectum and infiltrating the rectal wall higher up. The man's face looked drawn and his body was somewhat wasted. He stated that up to fourteen days previous to his visit to the author he had been in good health, although lately he had been troubled with constipation. Evidently it was a case of rapidly growing abdominal cancer, secondary to a growth high in the rectum. As obstruction was threatened, an operation was performed. The left inguinal region was opened, and some ascitic fluid escaped, but, as the sigmoid flexure proved to be bound down with the growth, the wound was closed and the other groin opened. The condition here was not much better, for cancerous deposits existed everywhere, but after a little trouble some bowel was dragged up and secured in the wound. Everything went well, so that at the end of forty-eight hours the bowels moved and relief was given. During

the next twenty-four hours the man's progress was fair, but it was noticed that the dressing on each side was damp—evidently adhesions had given way. This proved to be the turning point in the case, as rapid infection of the peritonæum followed and the patient died six days after the operation, or a month after the first appearance of the symptoms. The other case was that of an older brother in whom an examination revealed a similar condition. An operation was performed, but on the fourth day peritonitis set in and two days later the man died.

The occurrence of two fatal cases of abdominal cancer in one family within six months is of considerable interest, and, the author says, when we inquire into the family history, we are still more impressed. The grandmother of these patients died of cancer of the rectum, leaving eight children, two of whom died of undoubted cancer of the rectum and of the abdomen, and two others of a doubtful cancerous affection. One of the latter left three children, two of whom, a man and a woman, died of cancer. The man left a family of children, and one of them has recently died of abdominal cancer. Thus, there was evidence of cancer for four generations, in each of which it has made its appearance, frequently affecting the same organs and appearing in each successive generation at an earlier date, until in the last generation the disease proves fatal at the early age of ten years.

Some years ago, says Mr. Howlett, it was taught that cancer was hereditary and transmitted in some vague way from parent to child, and physicians were instructed to inquire into the family history in all cases. It may be said with truth that if researches were extended to the relations hardly a family could be discovered without some hereditary taint. This was, however, pushing matters too far, for, if our inquiries were limited to the immediate ancestors, quite as many would be found to be without taint as with it. Snow, in *Cancer and the Cancer Progress*, is cited as saying that further researches have demonstrated on numerous grounds the absence of valid reasons for assuming that an ancestral predisposition has any influence whatever upon the development of cancerous disease, and that we can not at the present day discover any grounds for holding that any one individual sets out in life with a greater liability to the development of cancer than any other.

These expressions of opinion, however, says the author, seem to be carrying us just as far in the opposite direction. How, he asks, can it be denied that heredity has some predisposing influence after such a history as that he has related? It should be understood clearly what is meant by heredity, and what title it has to be considered as a factor in any disease. Before the advent of the germ theory it was believed in as a simple explanation of the real tendency that members of one family often showed to the same disease. The actual transmission, however, of a germ from parent to child has not been proved. It is known that certain media form suitable soil for the cultivation of different organisms, and that which is best for one kind may be quite unsuited to another; so it is with the human body, for, although externally we may all

look much alike, yet it is now believed that there exist minute differences in the composition of each, and that one individual may be more fitted to the growth of one form of organism than to another. This, then, is what is understood as heredity at the present day—a certain peculiarity of soil which favors the development of some specific germ, and, applied to cancer, it must be admitted that a certain peculiarity of deposit may exist which is capable of being transmitted from parent to child.

MINOR PARAGRAPHS.

THE FIRST AMERICAN SYMPHYSIOTOMIST.

AN individual named Coggin, who is said to write A. M., M. D., Ph. D., etc., after his name, and whose abode was lately in the town of Keener, Alabama, seems to have been erroneously credited by Dr. Robert P. Harris, of Philadelphia, in an article published in the *New Orleans Medical and Surgical Journal* for February, with having been the first person to perform public symphysiotomy in America. Dr. Harris's statement, resting on Coggin's declarations, was copied into the *Alabama Medical and Surgical Age*, and excited the curiosity of the physicians of Etowah County, in which the town of Keener is situated, for they had never heard of the case. Consequently the Etowah County Medical Society investigated the matter, and found that there was absolutely no ground for Coggin's story, also, incidentally, that much mystery hung about his admission into the medical profession. The whole story is given by the president, Dr. Erasmus T. Camp, of South Gadsden, in a letter to the editor of the *Age*. Dr. Camp's letter is utterly destructive of Coggin's pretensions, and abounds in shrewd comments and unreserved statement. The credit of having first performed symphysiotomy in this country rests therefore with Dr. Charles Jewett, of Brooklyn, to whom it had been awarded prior to Dr. Harris's article.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending August 7, 1894:

DISEASES.	Week ending July 31.		Week ending Aug. 7.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.	25	9	22	3
Scarlet fever.	46	6	31	3
Cerebro-spinal meningitis. . .	3	3	0	0
Measles.	39	4	20	2
Diphtheria.	161	45	129	27
Small-pox.	4	0	6	1
Tuberculosis.	104	76	54	93

Letters to the Editor.

THE REDUCTION OF FRACTURES OF THE LOWER END OF THE RADIUS.

1506 LOCUST STREET, PHILADELPHIA, August 4, 1894.

To the Editor of the *New York Medical Journal*:

SIR: In your issue of July 7th, page 26, I find an important error in the report sent to you of my demonstration of A New Method for Reducing Fractures of the Lower End of the Radius

before the Philadelphia County Medical Society. The second paragraph should read: "The surgeon stood in front of the patient and interlaced his fingers beneath the *pronated* wrist and palm of the injured member," etc., *not* "supinated wrist," as printed. As all that follows depends upon this position of the wrist I trust that you will publish this correction.

THOMAS S. K. MORTON, M. D.

Proceedings of Societies.

SOCIETY OF ALUMNI OF BELLEVUE HOSPITAL.

Meeting of May 2, 1894.

The President, Dr. FREDERICK HOLME WIGGIN, in the Chair.

Fracture of the Patella.—Dr. CHARLES PHELPS presented a case of fracture of the patella which he had wired about a year ago. There was now nearly perfect motion of the joint, and apparently solid osseous union. He said that he had usually begun to make lateral motion at the end of two weeks, and flexion at the end of about four weeks.

Dr. JOHN W. S. GOULEY said that he had seen many of Dr. Phelps's cases of fractured patellæ, and that he had been particularly interested in the degree of flexion he had obtained within a few weeks' time. He had feared that fracture would result, and although he had never known of its occurring in any of these cases, he had felt that Dr. Phelps had been in too much haste to obtain flexion. The case which had just been presented showed what a wonderfully good result could be obtained after a year. It was worth waiting this time to secure such a result.

Dr. PHELPS said that in two of his cases fracture had occurred under this treatment, and in them the accident had been due to the fact that he had not taken sufficient care to obtain enough lateral motion before attempting to get flexion. In these cases one patient had got osseous union without having been wired again, for it had only been necessary to put up the limb for about two weeks and then resume passive motion. In neither of these cases had the patient known that fracture had occurred. He did not regard it as a very serious complication.

Dr. STEPHEN SMITH said that he had had an opportunity of seeing a number of these cases in the St.-Louis Hospital, Paris. The surgeon there had employed a peculiar incision, somewhat like that used in cases of excision of the knee, and his practice had been to let his patient get up and walk at the end of two weeks, and after six weeks to return to work. He had had no bad results in more than fifty cases, except in one instance in which refracture had occurred. He had wired in all the cases, and apparently with the most excellent result. The speaker said that he had also seen in the same surgeon's service a case of double rupture of the tendons of the quadriceps in which an excellent result had been obtained in four weeks after wiring. These facts would seem to indicate that we usually waited too long before allowing the limb to be used.

Dr. PHELPS said that he was glad to know that the operation was growing in favor. When he had begun to use it, it had been regarded as almost criminal.

Impacted Subtrochanteric Fracture of the Right Femur.—Dr. J. W. S. GOULEY presented the upper end of the right thigh bone of a man, forty-six years of age, who during a prolonged debauch, and while under alcoholic intoxication, had fallen down the steps to the cellar on the 18th of April, 1894. A few hours after the accident he had been taken to St. Vincent's Hospital, and had been examined by the house surgeon, who had noticed that "the great toe of the right foot

pointed toward the ball of the left great toe," that there was much tumefaction below the hip, that the injured limb was shortened about an inch and a half, and that this limb was rotated inward and adducted. This faulty position of the leg and foot, and the shortening, together with the absence of crepitus, had led the house surgeon and four other members of the house staff to believe that the man had suffered a post-iliac luxation of the thigh bone. The patient had been examined by the speaker on the day after his admission, and also by Dr. Wiggin, Dr. Syms, and Dr. Gibbons, all of whom had agreed that there had been a fracture. The question of the particular site of the fracture had been then examined. He had thought that the case might with propriety be called an impacted subtrochanteric fracture, and had based his diagnosis upon the character of the deformity, the position of the limb, the degree of shortening, and the absence of crepitus. The upper fragment had been drawn upward and forward by the psoas and iliacus muscles, and outward by the glutæi muscles, and the shaft had been drawn in by the adductor muscle, while the inverted position of the limb had been maintained by the impaction of the shaft's end into the upper fragment. After extension and rotation of the limb had several times been made, the three surgeons named had detected crepitus and eversion of the limb. It had only been after this free rotation and extension that the crepitus had been felt, and that the consequent disimpaction of the fragments had allowed the limb to become everted and to remain in this new faulty position while unsupported. A long external splint with extension, after the method of the late Dr. Buck, had been then applied. In the course of three days after admission the patient had become delirious and almost uncontrollable. On the fourth day his body temperature had risen to 104°, and had continued to rise up to the ninth day, when it had reached 106°. In spite of active treatment for *mania a potu* with meningitis, he had died on the

et and sawed off a few inches below the fracture, showed the line of fracture to be about a sixteenth of an inch below the lesser trochanter, to be transverse in half of the circumference of the bone and to extend obliquely downward and inward for an inch and a half, and finally upward and backward to the base of the lesser trochanter, so as to give the upper fragment a wedge-shaped projection, which, in life, had been carried forward and a little outward and upward toward the pelvis. The deformity observed on the patient's admission had been caused by this projection and also by the end of the lower impacted fragment being held in position by the adductors muscles, until disimpaction had been effected by extension. Disimpaction had been justifiable in this case on account of the extent of the deformity, but ordinarily when the deformity was not great in cases of suspected impacted fractures, it was not wise to attempt to obtain crepitus. It was proper to add that, in view of the inordinate rise of body temperature to 106° in this case, pus had been looked for throughout a careful necropsy, but none had been found. The only evidence of inflammatory action in the injured parts had been great redness of the medulla of the upper as well as of the lower fragment of bone. The hip joint had been found intact and there had been a marked depression in the cancellated structure of the upper fragment in which the point of bone from the lower fragment had been lodged. In the fresh state the marrow of the bone had been intensely red, so that it was barely possible that the high temperature might have been accounted for by the supervention of myelitis. It had been strictly a subtrochanteric fracture. Sir Astley Cooper had described a case of extreme deformity and obliquity. The fracture had begun above the trochanter minor and had extended two or three inches down the shaft.

Dr. PARKER SYMS said that he had been much interested in the case, and especially in the confirmation of the diagnosis. At the time he had examined the patient the impaction must have been broken up, for while there had been no distinct crepitus there had been a distinct slipping of the fragments past each other, with an obscure crepitus. When the limb was rotated, the deformity at the anterior aspect of the thigh was so great that he had expected the autopsy to show a large effusion of blood.

Dr. GOULEY said there had been no more effusion of blood found at the autopsy than in an ordinary case of fracture.

Dr. STEPHEN SMITH said that the name given to this fracture was new to him, but it certainly described very accurately the condition present.

(To be concluded.)



ninth day. The necropsy had revealed well-marked meningeal inflammation, intense pulmonary congestion, and hepatic and renal sclerosis. The injured bone, disarticulated from its sock-

Reports on the Progress of Medicine.

GENERAL SURGERY.

By JAMES P. TUTTLE, M. D.

Prostatectomy.—In order to minimize the danger or obviate the unfortunate results of this operation, Mr. James H. Nichols (*Lancet*, 1894, vol. i, p. 926) directs attention to the following points: "1. Prevention or lessening of hæmorrhage. 2. Prevention or lessening of pyæmic absorption. 3. Deliberate, complete, or at least pretty extensive removal of the prostatic tissue. 4. Avoidance of extensive tearing out of portions of the bladder neck and deep urethra." The technique of the operation, which he has done four times, is briefly as follows: "A suprapubic cystotomy is performed; no rectal bag is employed for this on account of subsequent proceedings. All

bleeding points in the parietal incision are secured and the wound dusted with iodoform before the bladder is opened. The incision in the bladder must be a free one, and the walls of the viscus are secured to the skin by four sutures. The bladder is then carefully and repeatedly douched with a carbolic-acid solution (1 to 200), the phosphatic concretions on the walls being removed with a lithotomy scoop. The viscus is then partially filled with the carbolic solution, and the patient tied up in the lithotomy position. The second part of the operation consists in the removal of the prostate through a modified median lithotomy wound. An ordinary bougie or sound is passed and given to an assistant. The left forefinger in the rectum, an incision is made in the perineal raphé and gradually deepened till the apex of the prostate is reached, but without penetrating the urethra or bladder. The rectum is carefully separated from the posterior surface of the prostate and a vertical incision is then made through the posterior and inferior part of the prostate capsule. The capsule is then gradually shed off the gland to either side by means of a blunt instrument like a periosteal elevator, the assistant in the meantime pressing the prostate down in the perineal wound with his fingers introduced into the bladder through the suprapubic opening. (If sufficient room for this isolating of the prostate has not been afforded by the median perineal wound, it may be obtained by supplementing the median incision by a lateral one somewhat on the lines of Dittel's, and curving outward and backward from the posterior end of the median cut to a point between the anus and the posterior end of the ischial tuberosity, nearer the former than the latter. This may be done on one or both sides.) All bleeding points being secured, the surgeon, after carefully washing his left index finger in the carbolic solution, puts two fingers of the left hand into the bladder from the suprapubic wound and, pressing the prostate (now pretty freely movable) down into the perineal wound, removes by the fingers of the right hand in the perineum the entire prostate, or as much of it as he deems necessary to relieve the neck of the bladder from all pressure and bring it down to a level with the prostatic pouch in the base of the bladder, judging the amount to be removed by manipulation of the parts between the fingers of the two hands. Should the prostatic tissue be unusually tough the fingers may be supplemented by a blunt instrument or Volkmann's spoon carefully used. During the entire operation neither the urethra nor bladder is opened further than is involved in the suprapubic incision." The after-treatment consists in the antiseptic treatment of the wounds, draining the bladder through a catheter *coudé* introduced *per urethram* and fastened in, and frequent douching of the viscus with mild carbolic solutions. The wounds are allowed to heal by granulation. In case of intravesical projection of the middle lobe, Mr. Nichols says, this should be neglected for the time being and twisted off eight or ten days later through the suprapubic opening, the mucous membrane having been first reflected from the gland. The advantage of the operation consists chiefly in the fact that the operated parts are not subjected to the septic contents of the inflamed bladder, and the ability of the patient to sit up very early, owing to the absence of a perineal tube.

A New Method of Curing Obstinate Fæcal Fistulæ.—A. Köhler has reported to the *Frei-Vereinigung der Chirurgen in Berlin* (*Deut. Med.-Zeitung*, Jan. 4, 1894) the following interesting case: A young woman presented herself with the history of having had two abscesses, one in the left inguinal region and the other between this and the navel. They both opened spontaneously. The second healed under treatment, but the first resolved itself into a fæcal fistula. Examination showed two strictures of the rectum, which were cured by the

use of bougies. From the fistula there branched off four tracts, two of which led to the upper segment of the colon, one to the lower, and the fourth into a loop of intestine twisted upon itself. The lower segment of the colon was adherent to the uterus. On account of the pain and fear of sepsis the author decided not to use the Dupuytren forceps, but instead introduced a full-sized rubber tube into the lumen of the gut, extending from six inches above the fistula almost to the anus. All the fæcal matter passed through this tube and the fistula was soon healed, with the exception of the blind tract, which the patient declined to have operated on.

Stricture of the Rectum and Sigmoid Flexure.—Dr. Joseph B. Bacon (*Mathews's Medical Quarterly*, vol. i, p. 1) has devised the following novel procedure for dealing with obstinate strictures of the rectum and sigmoid: Where the stricture is high up in the rectum or sigmoid the patient is anesthetized and placed in extreme Trendelenburg's posture and a median laparotomy incision is made from the pubes to the umbilicus. This incision enables the operator to see the rectum and determine how much of the sigmoid he must use to fold over the stricture and anastomose below. This having been determined, the sigmoid is drawn well up into the wound and clamped above and below the point selected for anastomosis. The male half of a medium-sized Murphy's button is then fixed into the gut at this point in the usual way. The operator then scarifies the portions of the sigmoid and rectum that are to be approximated. The next step is to place the female half of the button in position just below the stricture, and it is done as follows: An assistant places this half of the button over the trocar point and passes it through the anus and up the rectum to a point just below the stricture, keeping the trocar toward the anterior wall of the gut. The operator, by pressing over this point with a dressing forceps, causes the trocar to perforate the wall of the intestine and carry the neck of the button with it. The two halves of the button are then approximated and the anastomosis is complete. Two or three sutures are then placed in the peritoneal layers of the gut and rectum in order to approximate the scarified surfaces and thus produce a firm sæptum. The abdominal wound is now closed and the button left to liberate itself, which it does in about seven to nine days. A long, narrow clamp is then introduced in the opening made by the button, and the sæptum produced by the folded gut together with the stricture is grasped between its blades. The clamp is tightened from day to day until it cuts its way through. This occurs in about three days. The caliber of the rectum is thus increased by that of the gut brought down. The severed edges of the stricture do not unite because the healthy gut utilized in forming the new channel around the stricture acts as a connecting link between them. When the stricture is low in the rectum the Kraske method may be used for access to the parts. The chief advantages alleged for the method are that it obviates the necessity of an inguinal anus and permits of the complete division of the stricture without danger of its reforming.

Hydrocele.—Neumann (*Lyon médical*, Jan. 24, 1894) has recently employed successfully the following simple procedure in six cases of hydrocele: The sac is punctured with an ordinary trocar and the stylet withdrawn under antiseptic precautions. When the fluid has escaped the cannula is withdrawn for a very short distance, but not out of the sac. It is fixed at this point by a soft dressing of gauze or wadding and retained for about forty-eight hours. In all the cases he has obtained without suppuration or inflammation the agglutination of the opposed surfaces of the internal wall of the sac and the complete cure of the hydrocele. The duration of the treatment has been from seven to nine days. He alleges for the treatment that it is less complicated, less painful, surer, and of shorter duration

than those usually employed in this condition. The agglutination is brought about by the diapedesis of leucocytes produced by the contact of the trocar and the coagulating action exercised by these white globules.

Miscellany.

The Nephritis of Typhoid Fever.—In the *Presse médicale* for July 21st there is an article on this subject by M. Léonce Bodin, who reports a case that occurred in the hôpital Saint-Antoine. The author remarks that the forms of nephritis that supervene during the course of typhoid fever are well known clinically. They occur most commonly in patients affected with the classical form of dothienenteritis, with high fever, diarrhœa, rose-spots, tympanites, enlargement of the spleen, and a more or less pronounced typhoid condition. The renal accidents usually make their appearance during the course of the second week. Albumin appears suddenly and more or less abundantly in the urine, and its appearance is accompanied by general phenomena of variable intensity. When these phenomena are violent, as sometimes happens, they deserve the name of acute uræmia, being accompanied by almost complete suppression of urine and by œdema, and almost always terminating fatally by convulsions or coma. In another form they are less violent, but they are always grave. There is blood in the urine, which is diminished in amount, and the uræmic phenomena are less intense. Finally, and more frequently, still less severe derangements are observed, characterized especially by an aggravation of the general condition, by dryness of the tongue, by pains in the loins, by headache, and by the appearance of a slight amount of albumin in the urine. It is particularly in this third form, happily the most frequent, that there is especially to be observed an exaggeration of the symptoms proper to the typhoid fever, but with a very clear renal character easily recognizable. In these forms of nephritis microbes are generally found in the urine or, but much more rarely, in sections of the kidneys. Ordinarily they are micrococci, with or without the bacillus of Eberth, streptococci, and staphylococci, the last-named being far the most common. As these microbes are habitually found in the intestinal canal, it is very probable that they gain entrance into the blood through the intestinal ulcerations, which are an open door to all secondary infections; consequently, these cases of nephritis of typhoid fever are most commonly cases of secondary nephritis.

But typhoid nephritis may present various guises, and the case reported showed very special characters in its evolution, so that it seems to the author to be an example of a particular class of cases, both clinically and bacteriologically. The patient, twenty-three years old, was a night nurse employed in the Trousseau Hospital. She was admitted into the Saint-Antoine Hospital on the 1st of June. For about a week she had suffered with progressive loss of strength, great lassitude on the slightest exertion, invariable fatigue on rising, progressive and persistent impairment of sleep, and continuous headache which resisted antipyrine. She had lost her appetite and had vomited a few times, but had no diarrhœa or bleeding from the nose. On examination, the abdomen was found soft and not distended; there was no gurgling in the iliac fossa or pain anywhere on pressure; the tongue was lightly coated and pale, but neither red at the tip or at the border nor tremulous. There were no rose-spots on the abdomen. After a minute search two or three doubtful eruptive spots were found on the back, between the

shoulder-blades and on the lumbar region. The spleen seemed somewhat enlarged. The temperature was 102.1° F. in the morning and 104.2° in the evening. The lungs were normal, and the patient's general condition was good—she had no stupor, but slight prostration. The urine was normal. After hesitating between influenza and typhoid fever, the latter was diagnosed. On the 5th of June it was noted that during the night the patient had vomited abundantly and that the matter vomited was greenish; also that her general condition was aggravated and that there was some stupor, with severe headache, lumbar pains, and dryness of the tongue. The urine was of a deep-red color and contained a notable quantity of albumin. The temperature, which had at first been kept down with quinine, had now risen to 104.3°. Baths of the temperature of 66° were prescribed every three hours. On the 6th many red blood-corpuscles were found in the urine, also blood casts and epithelial *débris*. Albumin was found in the urine until the 25th, after which it was present only as a slight trace for a day or two and then disappeared definitively and the patient was in full convalescence. M. Bodin calls attention to the fact that during the whole course of the disease at no time were the ordinary abdominal and pulmonary symptoms of typhoid fever observed, only a moderate prostration during the early days. The temperature curve was that of typhoid fever of medium intensity, but the onset of the symptoms of nephritis had been very definite and had impressed upon the disease a particular aspect. The small amount of albumin found in the urine and the absence of oliguria, save at the outset, are to be contrasted with the very decided uræmic phenomena present from first to last.

The bacteriological examination of the patient's fluids was made as follows: Beginning with the 6th of June, the urine was collected every second day, examined, and inoculated. On three occasions the blood from the spleen was inoculated. The urine was removed from the bladder with a sterilized metallic catheter after a thorough cleansing of the vulva and meatus urinarius with soap and a solution of corrosive sublimate. The urine, received into sterilized tubes, was placed on a centrifugal machine and cultures were made in gelose, gelatin, or bouillon directly from the deposit thus obtained. The blood was taken from the spleen by means of a Roux's syringe boiled for an hour, and after previous disinfection of the skin over the spleen. It was ascertained that from beginning to end the urine contained a very great abundance of bacilli having all the characteristics of the Eberth-Gaffky bacillus. The existence of this bacillus exclusively in the urine is considered remarkable by the author, for most commonly in analogous cases there are numerous associated microbes, especially staphylococci. Furthermore, from the complete absence of the ordinary intestinal symptoms of typhoid fever, he thinks it probable that in this case the intestine was but slightly if at all affected, so that there could not have been a secondary infection by the microbes which are ordinarily found in the alimentary canal. The author hazards the hypothesis, which he confesses is somewhat forced, of a primary nephritis from infection with the Eberth bacillus, or nephro-typhus accompanied by a general condition and a temperature curve resembling those of typhoid fever without any of the usual symptoms of typhoid fever pertaining to the alimentary canal, the lungs, etc. Granting this to have been the case, the Eberth bacillus would have acted in this case as the pneumococcus acts in certain kinds of amygdalitis in which the thermometric curve and the general condition of a frank pneumonia are observed without the slightest local sign of pulmonary inflammation. The writer refers to reports of analogous cases recently read by Fernet and Papillon before the *Société médicale des hôpitaux*.

Epileptic Automatism.—The *Lancet* for July 21st publishes an interesting account of several cases related by Dr. W. S. Coleman, of London, in which no positive evidence of epilepsy could be traced: The first case, which had come under his own observation, had been that of a young woman, sixteen years old, who had been married three months and, while under remand on a charge of child stealing, had been brought to him for an opinion as to her responsibility for the theft. On the evening previous to the act she had had severe frontal headache and a sense of weight at the vertex, but there had been no evidence of anything like an epileptic seizure. She could not remember getting up in the morning, although she had been down to breakfast, when she seemed queer, ate nothing, and did not speak. At eleven o'clock she had left the house and soon after returned with an infant, which she had obtained by sending the young nurse in charge of it away on an errand. When her husband had come home in the evening he had found her rocking the child and pretending to nurse it. She had told him it was her child, and had become wildly excited, insisting on his going out to get a nursing-bottle. The child had been sent to the police station and the woman had been arrested. While in the cells she had become almost maniacal, but then had suddenly awakened, so to speak, and begged to be told where she was. After this there had been no abnormal symptom beyond severe headache. So far as the author could ascertain, she had not made any remark betraying any recollection of her performance during the day in question. There was nothing marked in her appearance; her memory was good, and there had been no motive for stealing the child, as she had been married only three months, and the author had ascertained by examination that she was not pregnant and never had been. The previous history of the case was extremely interesting. When three days old, the woman had had general convulsions, which had continued at frequent intervals until she was two months old, when they disappeared. At the age of two years she would eat garbage, and had been particularly partial to sawdust. She had been an extremely precocious child, and had shown a fondness for dressing up and acting, once offering her services at a neighboring theater when only four years old. Six years later she had dressed up as a servant and insisted on acting up to the part, taking her food after the family had finished, and so on. She had run away from home to get married, although there had been no opposition to the engagement. A year before coming under the author's observation her arm had been jammed in near the hinge of a door and both bones of the forearm snapped. She had experienced very little pain, and probably the arm had been anæsthetic at the time. There had been no hysteroid fits, but she had frequently been emotional, and her mother had described her as being "very hysterical." There was no history of epileptic fits, or of vertigo, or of anything that clearly pointed to *petit mal*. With regard to previous attacks of automatism, her husband stated that several times when he had taken her to places of amusement "her face went just like marble." On getting home she would deny that she had been out, although afterward some faint recollection would return to her.

This case, says Dr. Coleman, was by no means a simple one. There seemed to be three alternatives: 1. That the unconsciousness had been shammed and that the whole performance had been carried out in order to obtain notoriety. 2. That it had been a phenomenon of hysteria. 3. That it had been a methepileptic occurrence. There had been much in the girl's previous record in favor of the first alternative, such as her love of acting and of making a sensation, as shown by her runaway marriage with a man who had her parents' consent to marry her, and by her emotional behavior on many other occasions.

On the other hand, there was an entire absence of motive so far as could be ascertained. Her demeanor from the time when she had come to herself in the police station, the complete oblivion of the events of the day in question, together with the general features of the case, had determined the author to report that, in his opinion, she had not been responsible at the time. The question, he said, as to whether it had been an hysterical or an epileptic phenomenon was extremely difficult to decide. There was strong evidence of hysteria in the previous history of the case, but such periods of unconsciousness in hysteria were unknown in England, so far as he knew, although cases had been described, mainly in the south of France. The positive evidence of any epileptic tendency in this patient had been slight, and had consisted chiefly of the numerous convulsions from which she had suffered in infancy. It was possible that the spells mentioned by her husband had been periods of automatism following unobserved attacks of *petit mal*. The grotesque character of her performance, the sudden awakening, and the (apparently) complete oblivion correspond closely, the author remarks, with the phenomena met with after epileptic fits. There was insufficient evidence to allow one to speak dogmatically, but the author regarded the case as one bordering on both epilepsy and hysteria, and the epileptic element as the essential factor in producing the automatism. It had been the author's intention to hypnotize the patient, but he had been prevented from doing so. This had been successfully accomplished in some cases and the account verified.

The most interesting and important case in this connection had been cited by Professor James (referred to by Dr. Hughlings Jackson). He stated that the facts had been investigated by others, among them Dr. Weir Mitchell, who had been satisfied as to the general accuracy of the account. The case was that of a clergyman who, at the age of thirty, had temporarily lost his sight and hearing, apparently from religious excitement, and had been subject to headaches and temporary fits of depression. There was no definite history of epilepsy, but he had had "several spells" of unconsciousness lasting a few minutes, which might have been of this character. In January, 1887, he had drawn some money from a bank and got into a car, and this was the last incident he remembered. He had not been heard of for two months, although advertised in the papers as missing. In March, at a place at least three hundred miles away, a man calling himself A. J. Brown, who had rented a small shop six weeks previously and stocked it with stationery, and had carried on the trade without seeming unnatural or eccentric, suddenly "woke up" in a fright and called upon the people of the house to tell him where he was. He gave his right name, and said that he was entirely ignorant of shopkeeping, and that the last thing that he remembered was entering the car. He soon proved his identity. He was very weak and exhausted. No allusion to his former life could be traced, except that he had once given an address at a prayer meeting under the name of Brown, in which he had related an incident which he had witnessed in his natural state. The two weeks, however, which had transpired between his leaving the one place and his arrival at the other had remained unaccounted for, and he was hypnotized three years later in the hope of obtaining some information on this point. In this condition he answered at once to the name of Brown. He said that he had heard of — (his correct name), but did not know that he had ever met the man, and when his wife was brought to him he said emphatically that he did not think that he had ever met the lady before. On being questioned, he at once recounted his doings in the lost two weeks. He had spent an afternoon in Boston, a night in New York, and ten days in Philadelphia, first at a hotel, afterward at a boarding house. The proprietors

of the latter remembered him quite well and said that he had been very quiet, occupying himself chiefly with reading, and talking little, and that he had never seemed to be at all odd in his actions. He could not be induced to confound the two existences. The dual existence, says Dr. Coleman, which was shown in this patient's case was extremely striking, especially as one had the benefit of the evidence of independent witnesses as to his conduct during the two months that the attack lasted.

The question arose, then, Whether, in cases of undoubted epileptic automatism, there might be a similar condition of dual personality. The author had been able to find no clear evidence on the point. Occasionally, and particularly in the simpler cases, a repetition of the same act was found—*e. g.*, attempting to undress; but he had not yet met with cases in which the patients had acted definitely as if they had lost their own personality, as had been the case with the American clergyman. It would, however, be desirable in cases where the automatic actions had led to unpleasantness or to false charges to hypnotize a patient, as the information so obtained, although, of course, in itself worthless as evidence, might lead to facts being brought to light which would not otherwise have been forthcoming. For merely experimental purposes the author would not feel justified in hypnotizing such patients.

A Classification of Reflex Actions.—There is an article on this subject by Mr. D. Fraser Harris, of London, published in the summer number of *Brain* for 1894. The author remarks that the following classification is an attempt to exhibit a scheme of the various groups of the reflex actions of the animal body. Both physiological and pathological reflexes are noted, although it was not possible to quote more than one or two examples of each subgroup out of a very large number. This scheme, he says, aims at providing a more extensive and at the same time a more definite terminology than is at present in use, whereby it would be possible to refer, with considerable precision, any given reflex to its appropriate genus or species. The scheme is more an indication of the lines on which such a classification could be carried out than any final or rigid presentation of the question.

1. Excito-motor, including excito-muscular of involuntary muscle: Euperistalsis; micturition in the sleeping child; the early non-voluntary stages of parturition; defecation and micturition in "spinal disease" and in coma; the iris reflex in partial narcosis; hiccough; an ejaculation of semen during sleep; the later stages of deglutition. Of voluntary muscle: Spasm in children during sleep from any irritation—*e. g.*, worms, and unconscious movements of adjustment in sleep.

Excito-glandular: Outpourings of gastric and intestinal juices in digestion; "sympathetic" preparation of the mammary glands in pregnancy.

Excito-vascular: Pathological blushing ("flushings") from indigestion; erection of the penis (in sleep); probably certain trophoneuroses, such as erythema, eczema, herpes, scleroderma, urticaria, and "glossy skin."

Excito-metabolic (dermal): Pigmentation of the areola in pregnancy; chloasma in disease.

2. Algio-motor, including algio-muscular of involuntary muscle: Dysperistalsis (colic); vomiting from renal colic, etc.; inhibition of the heart ("shock") under an operation without chloroform. Of voluntary muscle: Spasm—writhing from pain.

Algio-glandular: Perspiration due to pain; lacrymation from a painful foreign body.

Algio-vascular: Blushing or pallor from agony.

Algio-metabolic.

3. Sensori-motor, including sensori-muscular of involuntary muscle: Contraction of the iris in a strong light; the action of the tensor chorioideæ in positive accommodation; contraction

of the uterus when the child is "put to the breast"; non-voluntary elements of the adult, conscious micturition and defecation. Of voluntary muscle: Winking due to a foreign body; coughing and sneezing; laughter and spasm from tickling; spasm from a draught of cold air in hydrophobia; deep inspiration from cold affusion.

Sensori-glandular: Lacrymation in a strong light; salivation on eating sour or acid materials, or at sight of food.

Sensori-vascular: Pallor in a cold bath; glow of the skin in a hot bath; catarrh of mucous membranes (*e. g.*, nasal) from a draught of air, etc.; probably with contemporaneous "low nerve tone"; rise of blood-pressure while hearing music.

Sensori-metabolic (dermal): Freckles; "bronzing" of the skin in a hot climate.

4. Emotio-motor, including emotio-muscular of involuntary muscle: Hyperperistalsis with diarrhoea from various emotions—*e. g.*, fear; progress of "labor" (dilatation of the os) inhibited by a stranger coming in or induced by fright; cardio-inhibition (syncope) from many emotions—"heart standing still"; rate of the heart-beat accelerated by emotion; micturition in consequence of emotion. Of voluntary muscle: A child jumping for joy, stamping the feet from vexation, slamming the door from rage; assault and murder from violent emotion; emotional alteration of the respiratory rhythm—*e. g.*, sighing.

Emotio-glandular: Activity of certain glands—*e. g.*, the stink-glands of the skunk, from fear; weeping from emotion, or inability to do so; inhibition of salivation from fear; "cold sweat" of fear, and perspiration from other emotions; lactation ("draught of milk") induced by joy; eupepsia due to a happy "frame of mind."

Emotio-vascular: Blushing from shame, modesty, rage, etc.; pallor from rage, fear, "nervousness," etc.

Emotio-metabolic (dermal): The hair turning gray from emotion.

5. Ideo-motor, including ideo-muscular of involuntary muscle: Vomiting from recollection of a disgusting sight or taste or from a vivid gustatory hallucination; the influence of hallucinations, etc., in the insane on the muscular tonus of viscera—*e. g.*, constipation of certain lunatics; spasm of the muscles of deglutition at the idea of water in hydrophobia. Of voluntary muscle: Actions and co-ordinated movements in somnambulism and the majority of such in the hypnotic trance; laughing at a recollection; "reflex speech" of certain lunatics; certain so-called "secondarily automatic" actions, such as standing, sitting, walking, playing on the piano (when completely familiar with it).

Ideo-glandular: Weeping at a recollection; the action of hallucinations (in the insane) on secretions; salivation at the thought of food.

Ideo-vascular: Blushing or blanching at a recollection.

Ideo-metabolic: The nails ceasing to grow in mania (dermal); action of the mind over the nutrition of tissue; mentally induced or cured diseases (as alleged); psychically produced trophoneuroses.

Mr. Harris remarks that all simple or "low" reflexes which do not require consciousness even for their existence, which do not affect it (the majority of them being outside its "pale"), and which can not be voluntarily controlled, might be included under excito-motor. They are, for the most part, the actions, movements, and processes of "vegetative," or "organic," life. If, however, such a reflex affects consciousness, or is in any measure voluntarily controlled, then it rises psychologically into a higher category, while its physiological nature has undergone no change.

Under group 3 are included all those reflexes whose afferent currents have originated in a true sense-organ, there having ex-

isted a perception between the reception of the afferent current and the emission of the efferent.

The ideomotor group includes all reflexes which are not the result of either perception or emotion, in some sense, "residual phenomena" among reflexes.

Under the heading "ideo-muscular" one would classify "volitions" if disposed to do so—a proceeding very acceptable to certain advanced psychological physiologists, says the author. To call all voluntary acts reflex, seems to lose sight of certain most radical distinctions between sets of actions, most notably between a reflex act and what might be called the corresponding voluntary imitation of it: *e. g.*, winking from a strong light is a sensori-muscular reflex; winking voluntarily is psychologically a process of a totally different kind. Again, laughing "in spite of yourself" is an emotio-muscular reflex, whereas voluntary laughing—*e. g.*, imitation of laughing—is, on the face of it, a very different act. The will naturally suggests "reflex inhibition." This is largely, but by no means entirely, voluntary.

With regard to psychico-metabolic reflexes, all vital action is metabolic, but a kind of reflex not concerned with definite glands or vessels, but having its manifestations through a wide spatial distribution, can be distinguished. It would be under the category "ideo-metabolic," says Mr. Harris, that those well-authenticated cases of hallucinations causing or curing disease would be placed. Thus there is much mystery and romance dispelled when, instead of "miraculous cure by faith-healing," we write "positive ideo-metabolic reflex!" Of course, he says, metabolic reflexes might exist in other systems than the dermal. It will be very evident, he adds, that "expression of the emotions" is largely reflex, while any imitation of an emotion—simulation of a particular expression—is a different thing psychologically; it is voluntary, to begin with. Moreover, the expression of many emotions is eminently under control; self-command does not so much consist in not experiencing certain emotions as in habitually being able to "inhibit" or control their manifestations.

Somnambulism.—The *Bristol Medico-chirurgical Journal* for June contains an article by Dr. J. Michell Clarke, of Bristol, in which he remarks that, if, without awaking a person who is dreaming, the motor centers are put in action by the illusion of the dream, the condition of somnambulism is arrived at. Somnambulist actions are of all grades, from the simplest to the most complex. The sleep-walker's energies are entirely absorbed and dominated by an extremely vivid illusion, under the influence of which his actions are concentrated upon the accomplishment of some deed suggested by it. We must not jump to the conclusion, says the author, that, because the somnambulist may be touched, spoken to, and even carried to bed without knowing it, touch and the other special senses are for the time in abeyance. In most somnambulists the visual and tactile senses seem to be preternaturally acute; but all the senses are directed only to one special aim, and are acute only when used to this end. In short, the sleep-walker is "possessed" by one idea dominating all his actions. He may get out of bed and walk on the parapets of houses or along narrow ledges; he may come to a river and swim across it, avoid obstacles and dangers, and pass through the most difficult places in safety, the concentration of the mind upon the desired object being so complete as to inhibit the feelings of timidity which under ordinary conditions would arise and paralyze his will-power. On the other hand, he may fail to recognize that certain actions are impossible, and so sometimes walk out of a window and be dashed to pieces, or, being unable to swim, be drowned in the stream into which he has passed. Such accidents would be most likely to

occur in imperfect states of somnambulism, when the perceptive centers are not fully aroused, and in which the sleep-walker walks along with his eyes closed.

The actions performed are often so complex and difficult of accomplishment, and the component muscular movements so suitably co-ordinated and adjusted thereto, that it must be concluded that their successive stages are, as a rule, realized by the sleep-walker. Sensations must reach the highest cerebral centers and be perceived, and the manner in which they are acted upon presupposes judgment and even intelligent choice. With regard to the various functions of the nervous system, the eyes may be opened or closed, generally open, and the sense of vision, as a rule, seems to be acute. Hearing may be absent or present. Touch is generally preternaturally acute. There is no doubt of the activity of the intellectual processes in somnambulism. It has been proved that children have learned their lessons while in that state, and repeated them correctly the next day. The only constant and essential sign of somnambulism, says Dr. Clarke, is the forgetfulness of all that has passed during the period of somnambulism, however complicated the actions may have been. The vivid dream, however, which preceded the somnambulist state may sometimes be recalled on waking. There is good evidence that in a return of the somnambulist condition the memory of the events that took place during previous attacks is most often preserved, although completely lost in the waking state. This is analogous to what is called induced somnambulism, a condition essentially resembling sleep-walking in its main features, which can be evoked by hypnotic suggestion. In induced as in spontaneous somnambulism, after the desired action or speech has been accomplished all further memory of it is lost; but, when the subject is subsequently hypnotized and again enters the somnambulist state, he has a more or less complete remembrance of all the events of the former somnambulism, but none of those of his normal life. He may thus have two existences—the first, or normal, and the second, or somnambulist one.

There are allied states, perhaps most often connected with epilepsy, which still more nearly approach the condition of spontaneous somnambulism. This condition is called ambulatory automatism, and it can not be recognized by any external manifestations, for the minor daily actions of life are carried on as usual, and there is nothing to betray the existence of an abnormal state. Dr. Clarke quotes the following instance from Charcot: A man who was accustomed to sell curios from house to house arrived at a customer's house at 8 P. M. on January 18th. He did not return to his carriage, and the coachman, on inquiring, found that he had left the house. From that time until January 26th there was a complete gap in the man's memory, but on the 26th he found himself on a bridge in a strange city while a military band was passing at the time which might have awakened him. Not liking to ask the name of the town, he inquired his way to the railway station, and there saw that he was at Brest. He found that his clothes were clean and well kept, and his shoes not dirty or worn, so that he could not have traveled the two hundred miles on foot, and his general condition was such that he must have had proper food and accommodation during the time. These eight days had completely dropped out of the man's life, yet his condition showed that he must have taken food and drink, slept, obtained shelter, and paid for all these things, and all the time have conducted himself like an ordinary person. The man was perfectly sane and intelligent, and showed no evidence of brain disease. The condition in this case was closely allied to somnambulism, and the author thinks that a person during sleep-walking is conscious, can see, hear, and feel, and form more or less accurate judgments from his perceptions as to the actions best

adapted to attaining the end he has in view, but on awaking completely forgets all that has passed during the somnambulism; and, although the sphere of this consciousness in the somnambulist state is limited, there is no ground for the assumption that the actions are subconscious and take place without bringing the higher cerebral centers into activity.

In somnambulism both the lower and the highest sensory and motor centers are called into activity, but only in a limited way, with strict reference to the illusion which is being acted upon. So also in induced somnambulism the operator can put into action certain centers exclusive of all others by means of a potent suggestion. In both cases, the normal processes of association of the ordinary life being set aside for the duration of the somnambulist state, there is nothing to call up the memory of what has passed until the subject again falls into the same condition or is thrown into it.

Bromine and Bromal Hydrate.—The *Hospital* for July 14th publishes an article by Sir Benjamin Ward Richardson, of London, in which he says that the part played by bromine in therapeutics is now very extensive, and, from some points of view, unique. He remembers a time when bromine and bromides played no part in medicine, and when bromine itself belonged exclusively to the chemists' domain.

A theory was at one time started that bromine, iodine, chlorine, and oxygen were one substance presenting different conditions, probably by the molecules of the element combining with each other, as oxygen combines in the substance called ozone. The late Professor Wilson was, he thought, the originator of this theory, and said a great deal in support of it. Like the three elements, chlorine, oxygen, and iodine, it is a negative electric, and in its combining proportions bromine presents features which would seem to connect it with the family of substances named. Like all these substances, too, it acts with great intensity on dead organic matter, decomposing it much in the same way as ozone does, and indeed its use as a destroyer of infectious matter has been very loudly and properly declared by many experimenters who have employed it for this purpose. Its pungency, however, leads it to be less manageable than iodine in the sick-room, and he does not know that it is more efficient.

In the author's researches on the action of different elements on animal bodies he followed out a long series of experiments with bromine, using it in combination with water, alcohol, ether, and amyl hydride, in all of which it is more or less soluble. In its concentrated form the vapor of bromine is an excessive irritant when inhaled. This was discovered very early by those chemists who studied its properties, and as they found that so small a quantity as one minim infused by the breath into birds and small animals caused rapid disturbance and sometimes death, they became afraid of its toxic properties, a fear which no doubt interrupted for some years its introduction into medicine. In his work he proceeded very carefully in the administration, allowing it to be inhaled from ethereal solutions of different strengths, and the conclusion he came to was that while in large doses it acted as an irritant, in smaller doses it produced paralysis of the vascular mechanism of secreting glands by which they were made to throw out an abnormal amount of secreted fluid. He found also that it produced a certain narcotic effect, not a true anæsthesia, but a nervous inactivity, which by continued administration led to phenomena of muscular paresis, approaching somewhat in effect those produced by amyl nitrite. The inquiry led him to introduce into use the various organic bromides which are now so largely employed; bromides of quinine, iron, and strychnine especially.

Bromal hydrate is the analogue in the bromine series of the chloral hydrate in the chlorine series. In 1870 he used this

substance, both in experiment and in practice, as did also Dr. Steinmann, of Berlin, and Dr. John Dougall, of Glasgow; and their results, independently carried out, tallied most satisfactorily with his own. They were of one mind in thinking that this hydrate would in time prove a good addition to therapeutic resources.

The author's first observations led him rather to depreciate the value of bromal hydrate. The dose of it required to produce specific symptoms was much smaller than that required for the corresponding chloral compound, five grains of the bromal hydrate being equal to ten of the chloral hydrate. The symptoms that followed its administration were a kind of narcotism attended with muscular prostration, but with less insensibility than follows from chloral hydrate. It was possible with it to produce really deep anæsthesia, but this was only brought about when the dose was unusually large, and then there followed such sudden and extreme decrease of animal temperature that signs of asphyxia from condensation of water in the bronchial passages—hydrops bronchialis—were developed with fatal consequences to one or two of the inferior animals subjected to its influences. This effect was so striking that he was led to think of the use of bromal hydrate as a good remedy for the reduction of temperature in high febrile states; and if he has for convenience's sake been brought of late to use chloral hydrate preferably for the same condition, it is only as a matter of convenience, the bromal hydrate being rather difficult to procure in the pure state.

When it is obtained pure, bromal hydrate is a crystalline substance not unlike chloral hydrate, and can be administered much in the same manner, but in a smaller dose. Three to five grains of it dissolved in an ounce of water form a sufficient dose for anti-febrile purposes. It can be combined with all substances that are compatible with chloral hydrate. It can be given with chloroform water, and half a drachm of glycerin added to each dose goes well. It can also be prescribed in combination with liquor ammonii acetatis.

A point of great interest connected with the physiological action of bromal hydrate is seen in comparing its action with that of chloral hydrate. It illustrates how a difference of chemical elementary constitution and of weight modifies physiological action; how the heavier bromine in combination differs in action from chlorine in similar combination, and from the similar compounds of the heavier iodine. The science of therapeutics, as an exact science, and therefore more practical than now exists, will ultimately, says the author, rest on a full knowledge of these distinctions.

Copper Salts in the Treatment of Tuberculosis.—The *Revue internationale de bibliographie médicale* for July 10th publishes a review of a work on this subject by M. Luton. It is divided into two parts. The first includes the history, materia medica (therapeutic agents, the methods of employment, and the formulæ), and the action of copper salts in the tuberculous. The part of this work which is devoted to the examination of the local and general reactions has been carefully studied and is clearly set forth. In the second part facts abound. It is evident from the number of observations cited that whenever copper has been employed in tuberculosis at the beginning a recovery has been obtained. In cases of gray granulation the method is prescribed by Dr. Luton as insufficient in itself to produce complete recovery, but, associated with a rational medical and surgical treatment, it gives very good results. In the same way copper salts are a valuable adjuvant in cases of softening; ganglionic abscesses, manifestly perceptible under the skin, are amenable to puncture, but a much more rapid recovery has been obtained with general cupric treatment than with the ordinary

procedures. In tuberculous arthritis it tends to the same results. It is an excellent adjuvant in the first stage, it is valuable in surgical therapeutics in the second, and in the third it completes what the operator has begun and prevents the disease from spreading and, at the same time, a return of the symptoms. According to Dr. Luton, copper salts may be a valuable aid in all stages of the evolution of surgical tuberculosis as well as in non-surgical forms of the disease.

The Treatment of Dislocation of the First Metacarpal Bone.—The Grenoble correspondent of the *Journal des praticiens* remarks that this dislocation is so rare that Gérard found only twenty-six cases of it on record. It is caused directly by striking the thenar against a resisting body, and indirectly by extreme flexion of the thumb or by a blow on the extremity of the bent thumb. It is characterized by pain, deformity, shortening of the thumb, etc. M. Trouillet, who has recently met with a case, has made a study of the details of the treatment. Reduction, he says, is generally easy, but the dislocation tends to be reproduced on the most insignificant movement; hence the necessity of immobilizing the thumb. The question is, In what posture shall it be immobilized? Some advise immobilizing it in adduction, others in abduction, and still others, like M. Ollier, in a position intermediate between the two. M. Trouillet's opinion is that abduction should be selected. As a means of immobilization he recommends a plaster-of-Paris or silicated splint, strengthened with a piece of gutta serena or a piece of zinc wrapped with cotton. The apparatus should be kept on for a fortnight, and then the treatment is concluded with a few applications of massage.

The Treatment of Open Fractures.—The *Journal of the American Medical Association* for July 21st contains a paper on this subject by its editor, Dr. John B. Hamilton, read by title in the Section in Surgery and Anatomy at the recent meeting of the association.

The aseptic treatment of an open fracture, says Dr. Hamilton, requires first the thorough cleansing of the limb and the wound. The limb should be shaved and washed clean. Irrigation with boiled water is the best means of securing cleanliness of the wound. If there should be venous oozing, it should be stanching with hot water, or the wound irrigated with a bichloride-of-mercury solution, 1 to 4,000. The styptic effect of this solution is at once seen in the bleaching and drying effect produced. Any spurting vessel should be tied with carefully sterilized catgut. The next step is to secure accurate coaptation of the fragments, sharp splinters should be removed, but broad fragments; even when considerably comminuted, should be readjusted. The elevator and the heavy bone forceps will frequently be needed to bring the fragments into position. It is well known that the principal causes of non-union, outside of constitutional causes, are: 1, want of apposition; 2, interposition of muscles; 3, excessive motion. Every care should be taken, therefore, to avoid these causes of non-union.

Direct fixation of the fragments is one of the most important indications. This may be accomplished by periosteal suture or bony suture. The author has many times secured good union in bones of the foot, for example, by the periosteal suturing of the fragments. Chromicized catgut or whale tendon should be used, and a sufficient number of stitches taken to bring the fragments together. In case the obliquity is such that the fragments can not be brought together by periosteal suturing, the osseous suture may be done; after trying many expedients, and experimenting with many kinds of suture, he has reverted to silver wire as being that best adapted to the work. These sutures in some soft bones may be passed obliquely through with a stout needle, but generally a small drill-

hole must be made to enable the wire to pass. The wires must, after twisting, be left long and project from the wound so as to facilitate easy removal.

He has had no experience with the use of bone dowel plug placed in the medullary canal to secure fixation. It has seemed to him so liable to be septic, and there must be so many practical difficulties in the way of final removal, as to make it a dangerous appliance.

In five cases he has used the bone ring introduced to the notice of the profession by Professor Senn. In every case there was suppuration, and he has abandoned it until such time as we shall be enabled to sterilize the ring. It is yet so far from perfection in that regard as to make it almost certain that the wound will become infected. The principle yet may be made useful by the invention of some different material. The bone ring (or thimble) has one advantage, that is the great amount of exudate (forming callus) which is excited by its presence. So pronounced is this effect that in cases of ununited fracture, where there is no attempt at the formation of callus, the ring may be used to advantage notwithstanding its general lack of sterilization.

The condition of the soft parts must next be looked to. Indeed, it is a matter which is scarcely secondary to the proper treatment of the fractured bone. Wounded tendons, torn muscular structures, and lacerated nerves should be sutured according to the rules laid down for the respective tissue involved. Stout chromicized catgut will be found useful for tendons, and fine flexible catgut for nerves. In case the distal and proximal ends of a nerve or tendon can not be brought together, they may be sewed to the nearest adjoining nerve or tendon. All this takes time, but it will be well spent. When the wound is cleansed the bones are brought together, and the soft structures thus attended to; then irrigation is again practiced and the external wound closed by sutures of silkworm gut. Extension is usually not necessary if the fragments have been brought into perfect apposition, and there is much difficulty in retaining them. External support should be secured by a plaster-of-Paris bandage, and when necessary a fenestra cut opposite the wound.

Cancerine.—This name is given by M. A. B. Griffiths, in a communication lately made to the Paris *Académie des sciences*, a report of which appears in the *Mercredi médical* for July 4th, to a ptomaine which he has extracted from the urine of women affected with cancer of the uterus. He describes it as a white substance crystallizing in microscopic needles, soluble in water, and having an alkaline reaction. It forms a platinichloride, an aurochloride, and a hydrochloride. It gives a yellow precipitate with phosphotungstic acid, a brownish one with phosphomolybdic acid, and a red one with nitrate of silver. Mercuric chloride forms with it a gray precipitate, and Nessler's reagent gives a brownish one. Its formula is $C_8H_5NO_3$. It is very poisonous, producing fever and leading to death in three hours. It is not met with in normal urine, but is formed in the system in the course of uterine cancer.

Brewer's Yeast as a Remedy for Boils.—The *Lyon médical* for July 22d condenses from the *Répertoire de pharmacie* for July 10th some remarks by Dr. Debouzy on this well-known remedy for boils. The amount to be taken, he says, is from two to three tablespoonfuls in twenty-four hours, mixed with beer and taken before eating. This treatment is said to cure carbuncles pretty promptly; in cases of repeated crops of boils it may happen that new boils appear, but they abort. In cases of these successive attacks of boils the treatment should be prolonged for a fortnight. The only inconvenience arising from the use of the yeast is diarrhoea, and this is not often produced.

Lectures and Addresses.

THE PRESIDENT'S ADDRESS

DELIVERED BEFORE THE AMERICAN LARYNGOLOGICAL ASSOCIATION
AT ITS SIXTEENTH ANNUAL CONGRESS.

By D. BRYSON DELAVAN, M. D.

FELLOWS OF THE AMERICAN LARYNGOLOGICAL ASSOCIATION: In opening our sixteenth annual congress, let me heartily welcome you to what gives every promise of being a most useful and enjoyable meeting. The support which you have given it, both by your presence and by the scientific contributions provided, has been spirited and generous, and I am assured that you will still further co-operate with me in carrying it through to a harmonious and successful close.

As president, the option is accorded me of inaugurating our exercises with the time-honored ceremony of a presidential address. While some have held the value of this in question, I believe that such an address should be considered, in like manner with our annual dinner, as a very desirable, if not an indispensable, part of each yearly gathering, affording as it does an opportunity to call attention to ideas and suggestions of timely interest which could hardly otherwise be presented, and to record and study events of historic value in the career of the association.

Surely the experience gained in sixteen years should give light enough to illuminate for us the present and enable us to look forward somewhat into the future. In trying to forecast the future, too, it is eminently right that we should indulge in retrospect, particularly for the benefit of any who may but recently have come among us and to whom our early history may be unknown. I shall aim, therefore, to go backward with you over the life of the association, review the means by which it has attained its ends, estimate fairly its present standing, and, finally, study the methods by which its mission of usefulness for the future may be most surely and successfully accomplished. In doing this I trust that our older members may be stimulated by the story of their success, and our younger ones made to realize the full meaning and value of their admission into what has rightly become to its fellows an honored and cherished institution.

The history of our association is almost the history of laryngology, not only in this country, but in the world, for Manuel Garcia, the discoverer of the laryngoscope, is still living and one of our honorary members, while the list of our corresponding fellows has contained the names of the most distinguished specialists of the time. It must always be a cause of regret that Horace Green, our thrice-distinguished countryman, should have ended his invaluable labors before this association came into existence. As the pioneer specialist in diseases of the throat, his works now prove that he led the world, along a path indeed made rough and thorny by those who should have been his aids. Between the dark age in which he struggled and the brilliant era ushered in by Czermak, how great a change!

Then, blind groping after truth; now, learning guided by the electric light of modern scientific methods. Then, ignorance, opposition, misrepresentation; now, an acknowledged department of science, recognized and honored wherever known. Then, practically in the grasp of one man; now, universal. Truly, our earliest motto was well chosen—" *E tenebris lux.*"

According to Elsberg, the laryngoscope was first introduced into this country in 1860. By 1878 its use was being taught in twenty-five different institutions, and the specialty had gained a position of acknowledged respectability. Elsberg, eminently qualified for such a task, has given a complete history of the study of disease of the throat in this country, which those who own the first volume of our *Transactions* will find a most interesting record. In the same essay also he pointed out the rare possibilities of usefulness which lay in the path of our then youthful association, the birth of which had taken place but a year before. Concerning this happy event, let me refresh your memories by recalling the fact that the inaugural meeting of the American Laryngological Association was held in Buffalo on the 3d of June, 1878, in response to an invitation by Dr. Frank H. Davis, of Chicago, issued on May 10, 1878, to the following-named gentlemen: Dr. J. Solis-Cohen, Dr. Carl Seiler, Philadelphia; Dr. Clinton Wagner, Dr. George M. Lefferts, Dr. Louis Elsberg, Dr. Beverley Robinson, New York; Dr. Frank Donaldson, Dr. J. H. Hartman, Dr. Samuel Johnston, Baltimore; Dr. Frederick I. Knight, Dr. E. Cutter, Boston; Dr. E. L. Shurly, Detroit; Dr. William C. Glasgow, Dr. William Porter, Dr. Thomas F. Rumbold, St. Louis; Dr. Hosmer A. Johnson, Dr. E. Fletcher Ingals, Dr. M. Monnheim, Chicago. These gentlemen, together with Dr. Rufus P. Lincoln and Dr. F. H. Bosworth, of New York, met together, as above stated, for the purpose of forming a national association for the advancement of laryngology. Very justly, therefore, they should be considered the founders of this organization. From the minutes of this first meeting we learn that it was called to order by Dr. Lefferts, who acted as secretary, and that Dr. F. H. Davis occupied the chair. Dr. Louis Elsberg, in his inaugural remarks as first president, re-echoed the experience of Horace Green when, in speaking of his own twenty years of special labor, he said: "The road has been a rugged one, and few of you can realize to-day the uphill work, the obstacles, and obloquy encountered." And then, in the spirit of the true enthusiast that he was, he quickly adds: "In the pursuit of our specialty I have found much happiness, reward for all endeavor, satisfaction from consciousness of good work done, gratitude from patients, recognition from the profession, and altogether greater success, perhaps, than I have deserved." It was right that Elsberg should have been the association's first president. Holding that office for two successive terms, he gave in his inaugural addresses the principles upon which the society has since been conducted, with a degree of success which would argue ill for any serious departure that might in future be made from them.

The motives which actuated the leaders in the founding

of our society were eminently philanthropic, noble, and ambitious. No one can question that these were exemplified so clearly and forcibly by the four distinguished men who first presided over us that we need never think of failure as long as the ideas which they advanced continue to be kept in view. Their organization of the society was a preconceived movement in the direction of a higher and broader education; an intelligent, vigorous effort to advance and disseminate the knowledge of our special work. By means of its annual meetings, by the publication of its transactions, by the encouragement of the special literature of our department, both scientific and critical, by the bringing forward of youthful aspirants for laryngological fame, and, finally, by the study and practice of the best methods of instruction in our medical schools, it was hoped that the association might attain usefulness in no ordinary degree. How well these hopes have been realized will shortly appear.

Never since its formation has the association failed to hold its regular annual congress at the time and place formally agreed upon. Its meetings invariably have been well attended, both by its older and younger members. Every year new contributions, often of great scientific value, have been presented. The discussions have been remarkably full, original, and helpful. Indeed, if there is one thing to which we can point with just pride, it is the tangible essence of these meetings represented by our published *Transactions*. Fifteen volumes, models of excellence in all that goes to make a perfect book, each one in itself sufficient to form a most worthy monument to the genius, the devotion, and the progressive spirit of the society, have gradually accumulated upon our shelves. According to the published records and to the programme now before us, original articles have been contributed since the beginning of the society to the number of more than three hundred and thirty, a large proportion of which have been of unusual value. Comparing these papers with the best that the world has produced, they will be found to be scholarly, accurate, and exhaustive, while, scientifically speaking, many of them are historic, marking, as they do, the original discovery of important scientific facts, and in some instances inaugurating new eras in the departments of which they treat. The foreign relations of the association have always been intimate and agreeable, and there has never been a congress of any note in which it has not been ably represented.

Our association is intimately related also to another important educational factor. In the department of journalism its history has been honorably associated with the progress of the special literature of our department. As showing the advances made since our beginning, all of this, with the exception of the laryngological department of the *Monatsschrift für Ohrenheilkunde*, first edited by Professor Schrötter, of Vienna, and *Les annales des maladies*, etc., founded in Paris by Isambert, Krishaber, and Lacharrière, just twenty years ago, have been started since 1878.

A glance at them reveals an array of magazines which represent many languages, and which, in literary style and scientific excellence, are a credit to laryngology. These

journals may be divided into two classes: those which devote themselves especially or in part to the publication of original matter, and those which merely pretend to give a critical synopsis of the current literature of the specialty. Of the journals of the first class, none has played a more important part or attained a higher plane of excellence than did the *Archives of Laryngology*, founded in 1878 by our fellow-members, Dr. Knight, Dr. Cohen, Dr. Elsberg, and Dr. Lefferts, and by them so conducted as to have made the magazine a model guide for the future management of such enterprises. One valuable feature of it may have escaped your attention—namely, its biographical records, which form an important link in the following chain:

As a part of his inaugural address, the late Dr. Elsberg presented to this society a complete bibliography of laryngology up to the year 1878. The work of recording the current literature of the day had already been undertaken by Lefferts, who, beginning in 1875, published quarterly in the *New York Medical Journal* a carefully-prepared digest and complete bibliography of the subject, and transferred his reports to the *Archives of Laryngology* when that journal was started in 1880. Here they were continued, to be taken up and carried onward by other magazines, now easily accessible to all, up to the present time. To Dr. Lefferts, therefore, belongs pre-eminently the credit of this most helpful contribution, which, long antedating the *Index Medicus*, will be appreciated by every one of us who attempts to study or to write in this department, and which, combined with the bibliography given in the work of Sir Morell Mackenzie, presents the completest available record of the special literature of our subject.

Of the journals now in existence, that which is the oldest still continues to be one of the foremost and best, and the editors of the *Les annales* may look with well-earned satisfaction upon the twenty splendid volumes with which their labors have been rewarded. No journal since the death of the *Archives* has filled more acceptably a place of higher usefulness than the present *Journal of Laryngology*, founded by Sir Morell Mackenzie, and a worthy monument to him. By the English-speaking contingent, who are able to appreciate its value and compare it with others of its kind, it will easily be accorded the highest rank.

Turning from the department of journalism to that of book making, what changes have taken place with us since the days of Beunati and Horace Green! While a literature of extraordinary proportions has been steadily accumulating in this country, it may at present be said that the standard literature of laryngology began with Solis-Cohen in 1879 and ended with Bosworth in 1892.

Last and best of all, the influence of the association upon its active fellows has been stimulating and salutary. All will readily admit this, while there are some among us to whom it has been a veritable inspiration.

Thus the American Laryngological Association, completely successful from its inception, has steadily advanced upon the even tenor of its way, each year adding to its usefulness, its influence, and its reputation.

Meanwhile, as compared with ours, what has been the progress of the outside world in this direction? The story

of foreign national associations is briefly told. While there are various local societies and sections of laryngology, national associations have, until very lately, been unknown; now, however, their value is beginning to be recognized. First in the order of priority is the British Laryngological and Rhinological Association, founded in 1888 by that greatest of laryngologists, Sir Morell Mackenzie, ten years after the first meeting of our association. In 1890 successful associations were begun in France and in Belgium, in 1892 one in Italy, and, most recent of all, the Laryngological Association of Holland was started in 1893 with an active membership of twenty-five. Scandinavia, Russia, Germany, Austria, and Spain are as yet unrepresented. The American Laryngological Association, therefore, is nearly as old as all other similar associations combined. The fact that others are following its example proves that the ideas it has implanted, although slow in being accepted, are at last beginning to bear fruit.

But while upon the subject of such organized work in laryngology, it would not be fair to pass without notice the numerous local societies and special sections of large general medical bodies which have been formed for the advancement of our specialty. Indeed, here again America may claim priority, for five years before our national association was started there was organized, at the suggestion of Dr. Clinton Wagner, the Laryngological Society of New York. The story of its founding is worthy of your hearing, as it bears directly upon the subject of our discourse. It is herewith given in the words of Dr. Wagner himself:

"In the autumn of 1873, appreciating the advantage to be derived from a society for the consideration of laryngological work, I wrote to a number of men, many of whom had studied diseases of the throat in Vienna and elsewhere and who held positions at throat clinics in this city, requesting them to meet at my residence for the purpose of organizing such a society. Early in October, 1873—I can not remember the exact date—the following responded to the invitation: Dr. G. M. Lefferts, Dr. Woolsey Johnson, Dr. Charles McBurney, Dr. F. H. Bosworth, Dr. M. J. Asch, Dr. M. D. Mann, Dr. F. P. Kinnicutt, and Dr. H. Bridge. The New York Laryngological Society was then organized, having for its object the 'promotion of the study of diseases of the larynx, pharynx, and adjacent parts.'

"Dr. McBurney and I were appointed to draw up the by-laws. A large number of new members were shortly afterward admitted. The society flourished until the American Laryngological Association appeared, and later on, when the Laryngological Section of the New York Academy of Medicine was established, it was merged into it.

"It was the *first* society devoted exclusively to laryngology and rhinology established either in this country or in Europe. At Buffalo, in June, 1878, four members of the New York Laryngological Society—viz., Lefferts, Bosworth, Elsberg, and myself—took part in founding the American Laryngological Association; we were the only New Yorkers present.

"In the obituary notice of my friend, Dr. Elsberg, which appeared in the New York *Medical Record*, it was stated

that he had founded the New York Laryngological Society. I am quite sure that Elsberg never said anything to create such an impression.

"As a matter of fact, Dr. Elsberg did not join the society until 1875 or 1876—I think the latter date.

"I have not written this to detract in any way from the well-earned laurels of my friend Elsberg, and at the time of the publication of the notice I, of course, said nothing. I furnish the information now at your request to aid you in putting facts on 'permanent record.'

"Very truly yours, CLINTON WAGNER."

The Section in Laryngology and Rhinology of the New York Academy of Medicine now numbers more than sixty active members, its monthly meetings are fully attended, and its scientific work is of a high order.

Within the last few years a great change has come about. All over Europe signs of increased interest have become manifest in the rapid increase of these special societies. Thus highly successful local societies have been started in London, Berlin, and other centers. The latest report is that one has been formed in Budapest. Existing national societies and the special laryngological sections of general bodies, such as the Laryngological Section of the British Medical Association, the Laryngo-rhinological Section of the German *Naturforscherversammlung*, and the Laryngological Section of the American Medical Association, are all progressively more active; new societies, sections, and associations are rapidly being formed, and everywhere a spirit of progress is showing itself most gratifying to such as have the advancement of science truly at heart.

The effect of centralized effort of that healthful competition which is the inevitable and invaluable result of the free intercourse and friendly rivalry made possible by these societies has nowhere shown its influence more potently or with more gratifying results than in England, where lately the study of laryngology has been advanced with the energy and enthusiasm of a genuine renaissance. Wherever successful associations have been established, their influence has been invariably elevating and inspiring, as shown in the improved quality and amount of the scientific work done and in the general tendency toward the attainment of higher planes of professional education and culture.

It is indeed a satisfaction that this strong onward movement should have been headed, and at so great a distance in advance, by this country, and it is surely not unpardonable that we should express ourselves as the occasion warrants. In the midst of these self-congratulations, however, let us not for a moment be deceived or carried away.

Far from arousing other feelings than those of humility, let us remember that the success attained, the honorable place fairly and honorably won, the flattery of delayed but now widespread imitation—all impose added responsibility and weightier obligation. To be an example to the world, we must strive for superiority. Nay, even if we are to hold the place which has been won, it must be through increased diligence in our own work, and an ever-broadening receptivity to the ideas of others.

Having thus suggested a few points in the history of the association, let us study out, if possible, what has been

its most important function in the past and wherein lie its greatest possibilities of usefulness for the future. Unquestionably, the keynote of the whole matter was struck by our first secretary when he selected as the motto for our programme the words "*Docendo discimus*"—By teaching we learn. If the association is to attain and to maintain the highest place, it must itself be the exemplar and the guide; and, first qualifying itself by absolute purity of purpose, oneness of aim, and actual scientific superiority, then proceed to study and to carry out such plans for the advancement of the specialty as shall place the greatest amount of sound learning in the hands of the largest number of well-qualified men. The question of education, in other words, is vastly the most important, the most interesting, and the most opportune by which our attention could possibly be engaged. In it lies the hope of the future, both as to our own reputations and, what is of far more importance, as to the beneficent ends to which we fondly hope that our specialty may attain. This, in the origin of our association, was its grand, primal idea, inculcated first and last by the ablest and wisest of its founders, and interwoven by them into its very existence and being. Does one doubt this, let him read the enthusiastic addresses of our first president, Dr. Elsberg, the admirable thesis upon this very topic by our second president, Dr. Knight, and the more recent remarks of Dr. Glasgow; let him consider the unflagging enthusiasm, both in precept and example, of such men as Cohen, Lefferts, Shurly, French, Ingals, Mackenzie, and others of our older members, and he will see the truth more clearly than words of mine can tell it. Teaching has been and always will be the society's most important office. It is, in very truth, a teacher of teachers, and as such should not alone confine itself to the advancement of laryngological science through the influence which it has had upon the establishment of other societies, the fostering of good journalism, and the encouragement of original scientific work. The science of pedagogy, in so far as it relates to our own department, is a topic which should engage our most serious attention. The very fact that the leading teachers of the country are our fellow-members imposes upon the association an obligation to the profession at large which can not be underrated, still less set aside.

Starting, then, with the excellent beginnings made by the writers already mentioned, it is not strange that undergraduate teaching should have reached with us a high degree of perfection. Indeed, the plan of instruction, the equipment, and the general discipline of at least one of our leading medical colleges is of conceded superiority and stands unrivaled whether at home or abroad. Other schools in many different parts of the United States are doing good work. The question of the instruction of the undergraduate in this department, therefore, may be said to have been fairly considered and successfully met.

With the progress of time, however, new and strange necessities have arisen among us, and within ten years there has been inaugurated in this country one of the most significant and wonderful advances that the history of medicine has ever seen. The failure of the undergraduate medical school to answer all of the needs of the higher

medical education has been acknowledged and a new era has been ushered in by the establishment of institutions for the special instruction of graduates.

This movement, together with the vast increase in the literature of the department, has given to laryngology an almost startling popularity. All over the country the extension of laryngology, or, more correctly speaking, the multiplication of the number of practitioners who assume to treat diseases of the throat, has been enormous and has called loudly for increased and improved facilities for instruction. This want, so urgent and at the same time so creditable, has been met by the system of the graduate school. Beginning in New York, the value of the work has been speedily appreciated by the whole country, and not only are the original schools crowded with students from all over the continent, but in many other cities similar institutions have been established, until to-day Boston, Philadelphia, Baltimore, Cincinnati, Chicago, St. Louis, and San Francisco are provided for and new ones are springing up all over the country. Those of us who have been for years personally engaged in this most interesting field of labor have realized the intense zeal and devotion shown by our pupils, who, representing every section of our country, every possible grade of intelligence and education, and every conceivable variety of personal need, have come to us for such instruction as we, on the one hand, have been able to give them, and as they themselves, on the other hand, have been able to receive.

Dealing with such men, the problem of their education becomes to us the most important one of the day. The undergraduate question is much more easily solved, as between him and the graduate the case in our department is very different, undergraduates being, as a class, of about the same age, general training, and advancement in their medical education, and each individual requiring about the same courses of instruction to introduce him fairly to our science. With the graduate student, as has already been suggested, the case is very different, in that a vastly greater variety of personal needs must be met.

To satisfy the diversified necessities of these students imposes upon the graduate director a weighty task. The theory of graduate instruction in this country is an established and triumphant success. The popularity of the demand for it is beyond question. How, then, can we best attain the practical ends required by it? How can we best infuse the ferment of sound learning into this unleavened but well-promising mass?

If called upon to name the most important factors in the improvement of graduate instruction, the unhesitating answer would be—

I. A higher and more thorough general medical education on the part of the student.

II. The most careful selection in the choice of instructors.

III. A modification of the best undergraduate methods, to suit the needs of the older men.

IV. The more general recognition of the value of graduate schools to the physician, and hence to the public at large, and of the importance of so endowing them that

they may be able to perform the most extensive and efficient service to their pupils with the least amount of difficulty to their instructors.

The second consideration mentioned above is one of great importance, and we should endeavor to fill each teaching position under us with men who are both able and willing to acquire the necessary preparation and then to teach for teaching's sake—for the advancement of sound learning rather than for that of self.

As to the student himself, he must be impressed with the real gravity of the task which he has undertaken. It is unfair to allow him to believe that he can learn the whole subject in a short course of study, or to underrate to him the difficulties of special operations. In short, he must have placed before him, truthfully and fairly, as well the difficulties of our work as its successes. He must know that before he can be a surgeon he must be an anatomist, and before a special surgeon, at least a fairly qualified general one. He must be taught not alone from the book, but from the living experience of skilled, well-grounded, wise instructors, who, under the general guidance of the chief professor, shall start him upon the right path and lead him as far as his time and his capabilities will permit him to go. And, last of all, when he has read his books, learned the use of his instruments, and attended for as long as possible the daily clinic of some good man, he must realize that to the attainment of the highest skill he must devote the unremitting labor of years. Thus may be fulfilled to the utmost what has been defined as the vocation of the specialist—namely, to make discoveries and then to give them to the world. In no department has this already been done more loyally or at greater personal sacrifice than in laryngology.

Ever mindful of its obligation to the world at large, may it never happen that our association shall fail to hold in remembrance its duty to itself. While its future is full of promise, it is also not devoid of possible dangers. Lack of interest on the part of the older members, the multiplication of other societies, and, finally, those two elements which are the greatest bane of association work, namely, the introduction of society politics and the inordinate desire for self-aggrandizement—pecuniary and social—all of these may hover over the future of any organization, ready to confront it with deadly peril.

As to our founders, their lively interest in all that pertains to our success eloquently proves that their loyalty is as strong to-day as was their faith in '78.

With regard to the multiplication of special sections and societies, the more good ones we can have, the better. Than through them there is no surer way to stimulate interest and advance learning. To them we must look for the development of our own future members. The national association has thus far easily maintained the leading place; this will continue as long as we insist upon selecting as our fellow-members none but men of high principle and liberal education, who will fully appreciate the aims of the association and contribute to it their best work. Indeed, the recognition of merit and the encouragement of the best young element have from the very first been in-

sisted upon by the society quite as emphatically as the suppression of charlatanism or the unmasking of pretense. As to the last-named evils, the surest guarantee for the future will be adherence to the high principles which have actuated the past.

And now a word as to ourselves, and I close. Since this society was formed, laryngology has undergone a revolution. Then it was in the hands of a few men, who, under the stimulating influence of the earliest enthusiasts, formed a veritable aristocracy of learning. All this has been changed; where lately our association represented not only the best but the most of laryngology in this country, its devotees may now be numbered by thousands. A spirit of liberality has been among us, a veritable socialism of science, which, having acquired a rich and rare possession, seeks not to hoard it for itself but to spread it broadcast and with lavish hand to the remotest corners of the world. True, such leveling can not take place without danger of loss. If in this vast extension of knowledge our standards of excellence are to be lowered, and work, not of the worthiest, accepted at equal value with the best, the results will be disastrous to humanity and to the true advance of science. Such a calamity, however, I am unable to foresee. The outside competition which is crowding in upon us will only stimulate to higher attainment and greater skill, while from this vast body of new aspirants must arise men who will carry still farther upward and forward the light of truth for the illumination of those hidden mysteries which it has not as yet been our good fortune to see revealed. With the progress of the present day this society is responsible in no ordinary degree. Nurtured by ardent toil, enthusiastic interest, and no little self-sacrifice, the fate of the American Laryngological Association is in your hands. See to it that the future shall secure, so far as in you lies, the rich fulfillment of the hopes of those who gave it to you.

It is wrong that your patience should be longer trespassed upon. What has been said, although so imperfectly, may, I hope, be of interest and help to some. It implies congratulations to you for the association's successful past, with ardent hope and abiding faith for its ever brighter and increasingly prosperous career in time to come.

Trichophytosis in the Domestic Fowl.—At a recent meeting of the *Société française de dermatologie et de syphiligraphie*, a report of which appears in the *Mercredi médical* for July 25th, M. Sabouraud presented the head and neck of a chicken affected with trichophytosis which had been sent to him by M. Mégnin. The feathers had been entirely shed from the affected parts, leaving behind nothing but a prominent epidermic cone in which the parasite existed in abundance. The particular variety of trichophyton was the one giving rise to rose-colored cultures, which during the preceding two years the speaker had met with three times in the human beard. Each time the statements made by the patient had pointed to the origin of the contagion in birds, but until now the author had never been able to prove it. He considers it probable that this variety of the trichophyton is originally a parasite on birds only. Comparative cultures proceeding from this chicken and from the human subject were also shown by M. Sabouraud after they had been kept for twenty months, and they were manifestly identical.

Original Communications.

ON SOME PATHOLOGICAL CONDITIONS OF THE HEART IN DIABETES, AND THEIR RELATIONS TO DIABETIC COMA.*

By LEONARD WEBER, M. D.

I HAVE had under observation and treatment between fifty and sixty cases of diabetes mellitus, and kept a clinical history of most of them; the far greater number of them were private, about half a dozen only being hospital cases. As to sex, they are pretty evenly divided among men and women, who were generally over forty-five years of age when I first saw them, though the disease antedated the beginning of my own observation of most of the cases by two or more years. Four only concerned persons between twenty and thirty years of age, one of whom, a merchant, the son of a physician who died of diabetes, had all the symptoms of true diabetes fourteen years ago, but the disease became latent after a while. The man regained his health and is now apparently well, though I do not know whether his urine is free of sugar at the present time or not. And two cases in children, both girls, between eight and twelve years of age; one of them was attacked with diabetes after severe scarlatina, and died within three months under the symptoms of phthisis tuberculosa acutissima; in the other the disease came on a few months after acute bromism, caused by taking an ounce or more of bromide of potassium within thirty-six hours. In this girl's case interstitial nephritis developed pretty early in the course of the disease, progressing rapidly to a fatal termination, and she died about eighteen months after the commencement of her trouble, both kidneys being found reduced to the size of horse-chestnuts. A history of the last two cases was published by me in the *American Journal of Obstetrics and Diseases of Women and Children* some years ago. Of the forty odd cases of diabetes in advanced life, none of them got well, though I have known many of them to exist comfortably and be able to pursue business by living up to certain rules and regulations suitable to their individualities for a number of years—one as long as twenty, and quite a number for about ten years after I first saw them—and seven cases of diabetes I count among my office clientele at the present time.

Among the causes of death I have noted intercurrent and consecutive diseases, such as gangrene, pneumonia, and nephritis particularly, but at least half the number died of acute or subacute diabetic coma. Of the seven cases yet under observation, one presents an anomalous history:

Mr. S. K., sixty-four years old, married, merchant, came first under my treatment about twenty-five years ago for an old fistula in the left lumbar region, leading for about five inches upward toward the vetebræ, the probe not disclosing the presence of bone disease. By cleansing, scraping, and injection with mild sulphate-of-copper solution, the fistula finally closed,

and remained closed these many years. At least fifteen years ago he began with albuminuria, and has passed albumin in pretty large quantities ever since. Two years ago, in summer, he was taken ill with some gastric disturbance and slight fever, and presently began to drink more water than usual, lose in weight, and to show two per cent. of sugar in his urine. The presence of sugar is not as yet permanent in his case, but it frequently appears, and three months ago the man's old fistula broke open again and discharged some thin pus.

This development of glycosuria in the progress of renal albuminuria is not an isolated observation in modern medical literature, but it is the first case of the kind that has occurred in my practice.

Now, in coming to the subject of my paper—the state of the heart in diabetes and its relation to diabetic coma—it is well known to me that Frerichs already drew attention to it, and there are, besides, some recent papers out concerning the matter, especially one by Jacques Meyer, of Carlsbad, also by others I believe. I have not had the opportunity to read any of these, neither have I collected any special literature to present to you, but simply bring before you my own observations made at the bedside, and ask you to compare them in the ensuing discussion with your own. After attending about half a dozen diabetics who died in coma I had to notice that there were marked differences as to the premonitory symptoms, to the manner of the onslaught or development, and to duration, the termination being fatal in every well-marked case. The difference in kind and degree of coma appears to depend upon the relative potency of the factors that are mainly active in bringing it about.

Where the heart has grown weary, dilated, or its muscle diseased—often so when consecutive Bright's disease or arterial sclerosis is present in diabetes—*collapse coma* may take place without any of the symptoms of acid intoxication of the blood by diacetic and acetone acids, usually made noticeable by the well-marked acetone odor of the patient's breath. I have seen three cases of this kind not accompanied by much temperature or other symptoms of intoxication, but simply syncope followed by speedy cardiac death. This cardiac form of diabetic coma is certainly not as frequent as the other caused by *acid intoxication*, but heart disease in consequence of diabetes is not as rare as might be thought, and surely potent enough in itself to cause sudden death.

The last case of the kind I observed in an old lady who had had diabetes for at least fifteen years of her life to my own knowledge, and who died a few months ago seventy-three years old. During the last three years of the disease her heart showed increasing weakness and disturbed innervation, her pulse being never more than 24 to 26 a minute, and sometimes as low as 16 to 18. Symptoms of acid intoxication she had scarcely any, and finally there was just a little rise of temperature, a little more feebleness and irregularity of the pulse, and she passed away remaining conscious almost to the last.

Her husband, on the contrary, who had always been well and active up to his seventy second year, had acute diabetes all of a sudden, with six to eight per cent. of sugar in his urine sometimes, and presented the well-marked symptoms of acetone poisoning prior to an acute attack of bronchitis, became coma-

* Read before the American Climatological Society, at the meeting of the Congress of American Physicians and Surgeons, in Washington, May 31, 1894.

tose, and remained more or less unconscious for a week, until he died at the age of seventy-four. His heart never gave rise to any symptoms.

The causes of neuromuscular disease of the cardiac organ in diabetes are manifold, I believe. We have in the first place the wear and tear of the heart by a generally long disease producing functional weakness and predisposing it to dilatation and atrophy, fatty overgrowth, and later on, perhaps, fatty degeneration in the diabetes of fat persons, the poisonous effects of acetone and diacetic acid upon cardiac nerve and muscle, besides the poisonous effects of ptomaines produced by the putrefactive processes in the alimentary canal in course of the rather frequent attacks of gastro-intestinal dyspepsia of diabetic patients. Also concomitant or consecutive disease in the form of nephritis and arterial sclerosis plays no small part in affecting the heart and changing a previously fairly good prognosis as to further duration of life at once to a serious or grave one. Is not in chronic nephritis also the state and nutrition and functional activity of the heart of the utmost importance with regard to the management and prognosis of the case? I know it to be so, and have had occasion to speak upon this point in a paper *On the Value of Creosote in the Treatment of Surgical Kidney*, read elsewhere and published in the *Medical Record*, December, 1893. To take care of the diabetic's heart seems to me, after my experience, just as important as to pay attention to his dietary and keep his alimentary canal clean and wholesome, to prevent intoxication of the blood by acids and ptomaines with its baneful symptoms, and ward off the dreaded coma as long as may be. Fortunately for the patient, the indications for the one condition are not contraindications for the other, if properly understood. And this brings me to the prophylaxis of diabetic coma and treatment of diabetes by proper management of the diabetic patient, of which permit me to speak briefly before closing my paper. The course of diabetes in the majority of cases is chronic, but it may also be acute, even very acute. The transition from the one to the other stage has been verified in numberless observations; but, unfortunately, our position in the judgment of the progress of a given case that we undertake to treat is not so certain as it might be presumed to be, because it is so difficult to correctly understand the individual disposition and immanent power of resistance of the various organs and the entire system. Worms, in a second paper *On the Treatment of Slowly Progressive Diabetes*, read before the Academy of Medicine, maintains that none of the prevalent theories on the pathogenesis of diabetes are fully verified by clinical observation, and that it might be called a personal, proteanlike disease which can be brought about by the most varied causes.

I am prepared to indorse Worms's statement, although I have among my cases many where this or that organ seemed to be particularly affected, as, for instance, diabetes with cirrhotic hypertrophy followed by shrinking of the hepatic organ; a case of malignant disease of the pancreas with and two others without glycosuria; brain disease and locomotor ataxia with well-marked diabetic symptoms; a case of severe constitutional syphilis in the course

of which acute diabetes developed, and some cases in which there seemed to me a causal connection between arterial sclerosis and diabetes. I could not pronounce this case the hepatogenic, that the neurogenic, and that the pancreatogenic form of diabetes, because neither of them would give satisfaction when I had taken into consideration all the other constitutional symptoms of the patients.

If this is granted, our task will be to treat the diabetic individual prophylactically by taking care of his heart and his alimentary canal, to save him from coma, and directly by reducing his glycosuria as much as possible. It is some years since I first observed that one or another of my diabetic patients who had an already weak heart or was prone to attacks of gastro-intestinal dyspepsia was made worse apparently by continuance of a strict nitrogenous diet, and that after getting better of what might be called an attack of latent coma by appropriate treatment, got along better by allowing an amount of carbohydrates just sufficient for his individual requirements, yet not so large as to increase the glycosuria. In a statistical report Stephen Mackenzie states that out of eighty diabetics in Guy's Hospital forty-five died suddenly, and that it was important to observe that the pretty frequent gastric disturbances in the course of an absolute meat diet appeared to precipitate coma.

There is an increasing opposition to absolute meat diet and exclusion of all carbohydrates in the treatment of diabetes, and it appears that those have better results in the management of the disease who will not blindly follow an absolute system, but, after careful consideration of all the patient's history, adapt their therapeutics to his individual requirements. Cantani, who was, and Naunyn, who still is, one of the principal champions in Europe of an absolute diet, are opposed by Seegen, F. Myer, Gans, and others, and Gans, who has seen much and observed it well, said some time ago that if he was to choose for himself between an absolute meat diet and go on with diabetes and die, he would choose the latter. There is a doctor in Marburg, Germany, Kuelz by name, a man in good professional standing, who has in recent years made quite a reputation for himself as to special ability in managing diabetes successfully. He uses no secret remedies nor much in the shape of medicine, but tries to get as minute a history of his patient's case and constitutional and life history as he can, and adapts his treatment to the requirements indicated by the same, but never follows an absolute meat diet.

In every case that presents itself where I see no contraindication to its being done, I try to get the sugar out of the urine by two or three weeks' absolute diet, rest, massage, and bicarbonate of sodium and salicylate of sodium fifteen grains each, three times daily before meals. That being accomplished, I then try to find out how much carbohydrates my patient can take and digest, and have found this amount to vary between two and three ounces a day, which he is then allowed to have. The alkaline treatment in the above-mentioned form, or as Carlsbad mineral waters, is then continued.

If the soda solutions do not agree with the patient, I

give small doses of opium, after the manner of Pavy. Always being on the lookout for the condition of the patient's stomach, bowels, and heart, I use the well-known remedies to fulfill symptomatic indications, having frequent recourse to baths, to massage, and, where there is cardiac weakness or cardiac muscular disease, to Schott's method of treatment by baths and resisted movements, the particulars of which you will presently hear from another speaker.

In diabetic coma I have purged the bowels thoroughly, and then filled the lower colon with alkaline water, injected hypodermically soda and salt solutions, also used various excitants, etc., to stimulate the heart's action, but so far have seen no case of recovery.

25 WEST FORTY-SIXTH STREET.

IS THERE A BETTER REMEDY IN CHOLERA? *

By ERSKINE B. FULLERTON, A. M., M. D.,

PROFESSOR OF MATERIA MEDICA AND THERAPEUTICS,
STARLING MEDICAL COLLEGE, COLUMBUS, OHIO.

"By experience we find out a short way after a long wandering."—ROGER ASCHAM.

It is apparent that all modern remedies for cholera have failed. The statistics of the late epidemic in Western Europe show this. Professor Rumpf, director of hospitals at Hamburg, places the mortality in the two great hospitals in that city at 48.4 per cent.; Dr. Wyman and Dr. Banks, are quoted in Sajous's *Annual*, as saying: "There were in round numbers 21,000 cases with 11,000 deaths," a mortality of over fifty-two per cent. In the epidemic in the Mississippi Valley of 1873 there were 7,356 cases with 3,800 deaths, a mortality of 51.6 per cent. The assertion above made in regard to modern remedies might be so extended as to include all remedies, for even the one I advocate (the treatment of cholera being a great international cause rather than a pursuit, advocacy were here permissible if anywhere in science) failed, and failed signally, but it was because of *methods of administration which we now know to have been useless or worse than useless*.

As the deductive method of reasoning in therapeutics seems at present to be the vogue, it is my claim that from the most strictly scientific standpoint and from the laboratory of Professor Koch himself come the data that should lead us to hope the most from, and trust most fully to, the remedy about to be presented for consideration. There have issued from this laboratory two lists of agents having control over the vitality of the cholera germ; one of these by Boer, quoted by Surgeon-General George M. Sternberg (*Medical Record*, October 1, 1892), of those that kill the germ, the other of agents that inhibit its growth.

Agents disinfecting after two hours' exposure:

Hydrocyanic acid.....	1 to 1,350.
Sulphuric acid.....	1 to 1,300.
Caustic soda.....	1 to 150.
Ammonia.....	1 to 350.
Mercuric cyanide.....	1 to 60,000.
Gold and sodium chloride.....	1 to 1,000.

Silver nitrate.....	1 to 4,000.
Arseniate of sodium.....	1 to 400.
Malachite green.....	1 to 5,000.
Methyl violet.....	1 to 1,000.
Carbolic acid.....	1 to 400.
Creolin.....	1 to 3,000.
Lysol.....	1 to 500.
Mercuric chloride (Bolton's experiments).....	1 to 10,000.
Sulphate of copper (Bolton's experiments).....	1 to 500.

A glance at the above list will show the impracticability of killing outright the spirilla in the intestinal tract of a human being whom we expect yet to live.

Let us suppose that the patient had in him one quart of the rice-water exudate to be disinfected absolutely in the intestinal canal. It would require, according to the above list, 11.3 minims of prussic acid of a strength that a whiff of the vapor is supposed to have proved fatal to its discoverer, Scheele, or its equivalent, more than one ounce of the dilute acid; of strong sulphuric acid it would require twenty-four drops, without allowing for any vehicle, for chemical combinations that would at once take place in the alkaline cholera fluid, for increasing or repeating the dose in case of need, and, so far as known, it would take two hours to attain the desired end.

Under like conditions and to effect the same result there would be required more than a hundred grains of caustic soda, about four grains of silver nitrate, more than a grain and a half of mercuric chloride, about forty grains of carbolic acid, with which this enumeration will close, as one in four hundred is the strength of carbolic acid necessary for inhibition, according to the list of Professor Koch, and therefore furnishes a clew to the relationship in time and potencies between inhibition and disinfection. One thing stands out clearly from the above, and that is this—the great scientist was right when he said the thing could not be done.

This leaves us to look for the best and least harmful inhibitant, and here, fortunately, we can be in no manner of doubt, as in the same amount of fluid a little more than three grains of quinine, inhibiting one to five thousand, effect that result.

Inhibitory list of Koch, with additions:

Alcohol.....	1 to 10.
Alum.....	1 to 100.
Camphor.....	1 to 300.
Carbolic acid.....	1 to 400.
Oil of peppermint.....	1 to 2,000.
Sulphate of copper.....	1 to 2,500.
Corrosive sublimate.....	1 to 100,000.
Quinine.....	1 to 5,000.
Salol (Löwenthal).....	1 to 100.
Tannin (Cantani).....	1 to 200.

Forty grains of quinine, roughly estimated, would most nearly find their toxic equivalent in four glasses of champagne. The toxic effect of the ordinary ounce bottle of the one we have no reason for believing to be greater (mythical amaurosis excluded) than a quart bottle of the

* Read before the Ohio State Medical Society, May 16, 1894.

other. Yet forty grains of quinine should check multiplication of cholera spirilla in twenty-five pints of rice-water exudate, and if the physician were laboring under any doubt as to the capacity or the needs of his patient this amount of the remedy could be doubled in the course of a day's treatment without fear of disastrous results. A half ounce is reported to have been given in the course of treatment to one patient and two thirds of an ounce to another in Kentucky in the epidemic of 1873, both cases of the disease recovering. In fact, as it will, I think, be shown further on, the most of the cases of the disease treated by the remedy having a fatal termination, exclusive of those where a faulty method of administration was resorted to, had this result because of its having been in rare instances rejected by the stomach, or where from other causes there was not a sufficiency of the remedy administered before the patient was hopelessly collapsed or comatose from toxic absorption or toxic retention.

It is not my wish to be considered as favoring in all cases such very large doses of quinine in the disease. That it was so given by some is true, and that only slight mention is made of any symptoms of cinchonism is also true. That such was the case is fairly attributable to the rapid peristalsis of the disease. The currents at the same time being against absorption, the latter did not in any great degree take place. In other words, the old objection in regard to the possibility of having remedies absorbed, so long urged as a chief cause of failure in the therapy of cholera, is the very condition most desirable for the end we now wish to attain—namely, thorough inhibition, to be followed sooner or later by disinfection throughout the whole intestinal tract by means of some agent sufficiently powerful to effect promptly these results without being in itself deleterious to the patient. That twenty or forty grains of quinine sulphate, given always by the mouth and always in powder or solution, is sufficient to have the desired effects in any quantity of rice-water exudate presumably present in the alimentary canal; that after such contents are passed out, and with them much of the remedy, there would still be a residuum sufficient to embitter for a time the mucous membrane of the intestinal tract, and the future existence of any bacilli therein retained; that this effect once gained, the treatment thereafter may be *pro re nata*, is my firm conviction. To obtain a like effect the doses of other remedies are too great—this last-mentioned amount of quinine, as I have elsewhere shown (*Medical Record*, December 9, 1892), being the inhibitory equivalent of two quarts and a half of whisky or brandy, six hundred and sixty-six grains and two thirds of camphor, five hundred grains of carbolic acid, one hundred minims of oil of peppermint, eighty grains of blue vitriol, two thousand grains of salol, and one thousand grains of tannin.

That quinine in very minute amounts is capable of such decided effect in cultures as to lead us to hope that in greater strength it would effect in a short time disinfection of the intestinal tract in cholera, the following statement from Dr. J. C. Graham, of this city, is offered in evidence:

"DR. FULLERTON: After a series of experiments extending over a considerable period of time, the following conclusions are reached in reference to the effects of quinine on the spirillum of cholera asiatica: If the spirillum be placed in an aqueous solution of sulphate of quinine, in the strength of 1 to 1,000, and plate cultures be made therefrom at intervals, no growth results after fifteen minutes, and only once in a number of experiments did growth show after ten minutes, and then but two colonies developed, which were first macroscopically visible at the end of forty-eight hours. In these culture efforts, and in all other experiments, the plates and tubes were kept in the incubator at from 33° to 37° C. In 1 to 2,500 the number of colonies rapidly decreased in plates made at five-minute intervals up to thirty minutes, beyond which time no growth occurred. In the strength of 1 to 5,000 quinine sulphate the results have varied. Always there has been inhibition and destruction of a large portion of the bacteria, manifested in the slow growth and in the decrease in the number of the colonies in the plates laid at intervals up to the end of an hour. Twice there was no growth after thirty minutes. In this strength I have not been able to determine definitely the length of exposure required wholly to destroy the spirilla. The deleterious action of the quinine is shown not only in the inhibition and destruction of vitality, but also in the development of involution forms, when cultures are made from bacteria exposed for any considerable time to the action of the quinine. If the quinine be added to bouillon in the proportion of 1 to 5,000 and this be inoculated, no growth whatever occurs. In 1 to 10,000 there was growth in but one of a number of tubes. That the bactericidal effects of the sulphate of quinine depend upon the alkaloid and not upon traces of sulphuric acid present is certain, because experiments were made both with the sulphate and the pure alkaloid with identical results. A series of experiments was also made with the bisulphate, but the results were uncertain and much less satisfactory than with the other preparations. Control experiments were always made to 'keep tab' on the vitality of the cultures used, and the growths, when colonies were not typical of cholera, were examined in hanging drop or in stained preparation. It must be admitted that the results given above are incomplete, for it should be shown exactly how long exposure to the solutions of the various strengths was necessary to destroy the cholera spirillum. *This much is however, certainly demonstrated: that quinine in comparatively small proportions has a decidedly inhibitive effect upon the cholera spirillum in cultures, and that exposure to it for a relatively short time kills the bacterium.*

"J. C. GRAHAM, M. D.

"73 EAST STATE STREET."

In answer to my own query that gives title to this article, I say, yes, there is a better remedy. It was successfully used in epidemics of cholera, from and including that of 1831 to and including that of 1873, and wherever used it accomplished all that could reasonably be hoped from the use of any remedy. It passed out of use for reasons before mentioned, and because when given intravenously or hypodermically the remedy escapes by the kidneys and does not in sufficient quantity reach the intestinal tract, the seat of the disease germ. A precedent, nevertheless, was thereby established. "Precedent," says John C. Calhoun, "makes the error of yesterday the law of to-day"—the only saying of the great apostle of secession bearing the stamp of approval of Abraham Lincoln. Thereafter it became "gastro-intestinal malaria," or "mild cholera" only, that had been successfully so treated, although, as I shall

show, the cases formed parts of principal epidemics of cholera asiatica, giving the usual rates of mortality.

In my previous articles (*Medical Record*, October 1 and December 9, 1892, and April 29, 1893) there has been no reference to theories of the disease beyond the clearly established one of its germal origin. As the sympathetic-nervous system theory, however, has played so important a part in previous epidemics, thereby leading to the use in treatment of the deductive and fallacious atropine, I have a word to offer in regard to the toxines, the hypothetical part played by them being likely to complicate too greatly treatment in future epidemics. 1st. Is the toxine, like most animal poisons above the grade of a bee sting, an essential poison, toxic *per se*, or an irritant one that may be mitigated by dilution? 2d. What becomes temporarily of the profound effects attributed to it or them when the saline solutions set the semi-inspissated blood corpuscles once more afloat? The intestinal tract undoubtedly contains the poison or poisons; their absorption during the active stage of the disease, under the conditions then prevailing, must be more than doubtful. The liver of the polar bear must be full of them, or of allied poisons, but, while sailors have been sickened by partaking of it, there is no record of their ever having killed the bear. The only symptoms that seem fairly referable to toxic absorption pertain to the so-called consecutive fever, remittent or typhoid in type, and these symptoms, it is especially noted by several writers, do not manifest themselves after the quinine treatment.

Before leaving the deductive portion of this argument, it remains to be noted that quinine is the only remedy that promptly and effectually disposes of one specialized disease germ *in situ*, that of malaria, and where these organisms are so low down upon the microscopic verge of life that there is doubt as to their animal or vegetable origin, it seems only rational to infer that it might—especially in the light of scientific data above recorded—as promptly and effectually dispose of another.

Collapsed, collapsing, and quinine-inhibited cholera; statistic cholera, “ambulant cases” (Dr. Schlömann) “that came at sick call” (Dr. Henry), excluded; quinine in all cases given by the mouth, in form of powder or acid solution:

	No. of cases.	Deaths.	Mortality.
Dr. Bluff (Aix-la-Chapelle), 1831.....	17	4	23·5
Dr. Stephen (Aix-la-Chapelle), 1831.....	8	..	..
Dr. Kossler (Posen), 1831.....	30	2	6·6
Dr. Close (Portchester, N. Y.), 1849.....	1	..	..
Dr. Sargent (Philadelphia), 1849.....	17	4	23·5
Dr. Strange (<i>Prov. Med. and Surg. Jour.</i>), 1849.....	19	4	21·0
Dr. Gordon (Georgetown, O.), 1852.....	12	..	..
Dr. Van Meerdervoort (Nagasaki), 1857-1863.....	2,467	721	29·22
Dr. Schlömann (San Antonio, Tex.), 1866.....	220	3	1·3
Dr. Henry (Nashville, Tenn.), 1873.....	350	15	4·2
<i>Ultima pars jui</i> (Columbus, O.), 1873.....	5	..	..
Total.....	3,146	753	23·9

The above list more than equals one seventh of the whole number affected by the disease in the recent epidemic in Western Europe as given by Dr. Wyman and Dr.

Banks, with a gain of more than one half in the rate of mortality. But this is not sufficient, and it is my belief that a careful consideration of such facts as the various writers give will show more clearly and truly what the necessary mortality under the quinine treatment in an advanced stage of the disease should be. The only objection that so far has been offered, as against this argument, may be urged against the results of any remedy—namely, that statistics are misleading. Accepting the criticism, it is candidly admitted that the above figures, giving a mortality of nearly twenty-four per cent., are faulty—but in this, that *that rate of mortality is entirely too high*.

Leaving out of consideration for a time Dr. Van Meerdervoort’s cases, the quinine-inhibited cases of Dr. Schlömann and Dr. Henry, and Dr. Stephen’s eight cases as well (the amounts of the remedy given by the latter, two or three grains an hour only, being too small to have perfect results in an advanced stage of cholera), and the two of my own cases not entirely bed-fast, but still able to get up to void their stools—there are in the above table ninety-nine cases in the severe stage of the disease with a mortality of fourteen—*i. e.*, fourteen per cent. mortality.

In considering Dr. Van Meerdervoort’s report it would be well to put ourselves in his place. A comparative stranger, with presumably imperfect knowledge of the language, with a prejudice far greater than at this date in Japan to contend against, with doubtless inefficient nursing, and a reluctance on the part of the patient to repeat a bitter medicine in the absence of the physician—usually called in when the patient was far advanced in the disease—with two thousand three hundred and ten of his cases treated outside of hospital, only one hundred and fifty-seven of the number in hospital—all these circumstances, as he says in his report, would “prevent a proper control of the epidemic.” More than that, it was in the fruit season, and “the Japanese eat no ripe fruit, and sleep half naked on their verandas”—both of which statements seem likely to be true in a country where the carpenter, in using a saw, saws away from himself; in using a plane, planes toward himself; and in building a house, first constructs a roof. Besides this, in Japan, as elsewhere, the crash of an epidemic of cholera usually comes within a few weeks, and it is worth while to consider what a number of the average eight hundred patients yearly of his “three different fearful epidemics” must have fallen to his charge daily during such periods, so that it was but indifferent attention that could be given personally by the physician to any one patient. It seems only a fair assumption that with us, where there is an average of one physician to five hundred of population, with better nursing, a people less averse to medication and having more confidence in its results, a people of better constitution, and better able to withstand depletion, which East Indian surgeons say the vegetarian Asiatics do not bear so well as we, the results must have been much better even than his very favorable showing. “In 1854 there occurred in Japan 154,373 cases of the disease, with 101,695 deaths—a mortality of 65·8 per cent.” Accepting this as the usual rate of mortality of the disease in that country, Dr. Van Meerdervoort shows a gain

of 36.6 per cent. in mortality rate. If under the conditions above mentioned he could, in so large a number of cases, effect so great a result as this, it seems but reasonable that under more favorable conditions with us there should be a further reduction of one half in the mortality. In other words, with us it should have closely approximated the fourteen per cent. mortality rate, a little more than that of pernicious intermittent under quinine treatment of one in eight.

With the other names on the list of severest cases giving the fourteen-per-cent. mortality, the deaths are usually sufficiently accounted for. Dr. Bluff says: "Of the four that died one had had choleraic diarrhœa for four days before taking any medicine, and was *in statione mortis* when I was called; another received the medicine regularly, but after every dose of the quinine mixture received a glass of brandy (four an hour); the other two cases were amid the worst possible surroundings, and only one of the four that died was a robust young person." He gave at the rate of eight to ten grains of quinine per hour until improvement, then at longer intervals. The statistics of this epidemic at Aix-la-Chapelle show it to have been fifty-two per-cent. mortality cholera. Dr. Kosser gave six grains every two hours to his first patient: "After that I became bolder and gave it in the most dangerous cases every fifteen minutes, nay, every ten minutes in the same doses." He speaks of many of his cases "being affected in the highest degree." The narrative is that of malignant Asiatic cholera, much of it in collapse, and his good results (thirty cases with only two deaths) in part doubtless attributable to the fact that twenty-three of the number seem to have been soldiers, vigorous young men, in full strength when taken ill; but there is another circumstance worth noting, and this is, that he ran the dose up to the rate of twenty-four to thirty-six grains of quinine an hour, when in his judgment the same seemed necessary.

Dr. Sargent, whose paper "deals only with treatment we pursued in collapse of cholera, we say nothing of the simple diarrhœa that recovered under ordinary treatment," says of the four patients that died: "One, a nurse, had been sick a week with premonitory diarrhœa; she partially reacted; another vomited two fifteen-grain doses of quinine and was treated by rectal injections of the remedy thereafter." (Dr. Putelli, Venice, 1836, writes even of his big eight-grain pill: "I have never seen more than three pills rejected by vomiting.") The third patient "had been in a drunken condition for three days prior to the attack, and when treatment was commenced was collapsed and nearly pulseless." It is not likely that any but the one of these who vomited the quinine could have recovered under any other treatment already known or yet to be discovered. Dr. Gordon's cases in 1852 and my own in 1873 were undoubtedly malignant cholera. There were besides the twelve patients recovering under quinine treatment in Georgetown, Ohio, six others, five of whom died under other treatment, and the whole number in Columbus, Ohio, in 1873 was a hundred and thirty-eight, of whom ninety died—sixty-five per cent. mortality cholera, running up to eighty one per cent. in the Ohio Peniten-

tiary, where there were twenty-seven cases with twenty-two deaths.

So much for cholera with the patient already in collapse or rapidly passing into that state. Let us see how it has been with cholera that was quinine-inhibited from an earlier period in the history of the disease. All of this, so far as I am able definitely to ascertain, comes from the Mississippi Valley and may be regarded as the tart rejoinder of the Father of Waters to "Mother Ganges." The first of it is comprised in the cases of Dr. Schlömann, of San Antonio, Texas, in 1866. How many in the more severe stage of the disease he treated is not stated, as he especially says: "I wish to remark that all cases that came into treatment in the asphyctic state and all lighter ambulant cases of diarrhœa have been excluded. Under the quinine treatment two hundred and twenty cholera and cholera patients recovered and three died." Mortality, 1.3 per cent. Of the three that died, one vomited the medicine (half gramme doses, by mouth, of sulphate of quinine), and an hour thereafter became cyanotic. Another, "intestinal diphtheritic form with complete anuria." Another, a child four years old, that received but five grains of quinine. He says of the first, it "needs no comment." Perhaps not, but he does not say that he repeated the dose, and especially does mention his disbelief in the use of the remedy in the "asphyctic stage" of the disease. The second patient might have died under any conceivable treatment; the child that got but five grains might perchance have recovered after larger amounts of the remedy. He speaks of "the great surrounding mortality" from the same disease; says, "our cholera was the real cholera of the Ganges Delta, and not a doubtful hybrid form of intermittent," and made a test experiment that ought to be conclusive.* Wondering "if the favorable results came from the remedy he was administering or were due to other accidental and unknown conditions," he changed for a period from the quinine treatment to that by opium, aromatics, and astringents, with the result that "diarrhœa returned in every case worse than before, and the discharges became so threatening that I speedily returned to the use of quinine. After this day I continued the quinine treatment with the same previous good results."

But the most convincing facts of this whole induction are to be found in the disease as it occurred in the Tennessee Penitentiary as a part of the epidemic of 1873. It should be remembered that this was an unheralded visitation of the disease, its introduction at New Orleans having been denied by the leading medical journal of the South at the time. The facts of the penitentiary epidemic are in brief as follows:

About the 1st of May, 1873, the authorities in control of the penitentiary at Nashville, Tennessee, had notice that a malignant disease had broken out among two camps of convicts at work along the Memphis and Paducah Railroad. Up to the 13th of May there were forty cases with twenty-four deaths, a mortality of sixty per cent. On the 12th

* If we make the germ test retroactive, what proof is there that the sick from whom Koch first obtained his comma bacilli were themselves subjects of Asiatic cholera?

day of that month seventy-five convicts were sent back to the prison at Nashville purging and vomiting. On their arrival, about half their number could be accommodated in the prison hospital, the rest being sent to their cells, usually two in a cell, with two hundred and fifty cubic feet of air space, ventilation being through a fourteen-inch grating in the door of the cell; the bucket to receive the discharges inside the cell door. The diagnosis "scorbuto-malaria" was made by the young physician in charge,* and the patients were put upon a diet of fresh vegetables and sauerkraut with tincture of iron and quinine freely given, chlorate of potassium being used as an adjuvant.

But one of the seventy-five patients died, and he was so well when sent to his cell "that he received no medical treatment whatever." "The remainder recovered rapidly, and in a few weeks most of them were at work." Dr. Henry further states in a letter received by the writer about a year ago: "I gave quinine by the mouth altogether, freely and at short intervals at first; the cases were usually under control in an hour or two after the administration of perhaps twenty or thirty grains of quinine. Finding its potency for good, I kept it up, using it later on both by the mouth and hypodermically."

From May 12th to June 8th, a period of twenty-six days, there was an average of fifty-seven cases daily under treatment in hospital or in cells, without a death. At this last date "there was an explosion of the disease in the city of Nashville" (brought there by these same convicts), "the fact recognized that cholera was epidemic within the penitentiary walls," counsel from the city called in, and the patients put upon the approved treatment of the disease, quinine, however, still being given "freely by the mouth or hypodermically."

Dr. Henry gives the number treated in hospital and cells as three hundred and fifty, which would give a mortality rate of 4.3 per cent. as against the eighty-one per cent. rate in the Ohio Penitentiary under more favorable conditions, in that there was hospital accommodation for all, and the dietary was arranged for cholera and not for scurvy. That the penitentiary cases (quoting from my article in the *Medical Record*, April 29, 1893) treated with quinine were malignant cholera asiatica is evidenced by the fact that it was malignant cholera, with a death-rate of sixty per cent., before the convicts were brought in from their camps along the railroad; that it was malignant cholera in the only one of these that received no quinine; that it was malignant cholera in the negro (McClellan, quoted by Wendt) discharged from the penitentiary during this period and dying in the city a few days afterward; that it was malignant cholera on the day that the physician of the prison corrected his diagnosis, changed the dietary, and presumably modified his treatment, as three died on that day; that it was *more* malignant cholera after other treatment was in part only introduced, twelve

patients dying thereafter; that it was *most* malignant cholera introduced into the city of Nashville by these same convicts, as a thousand deaths were said to have occurred in the city during the epidemic. In the Nashville outbreak it will be noted that every time quinine was off the lid, up sprang the cholera jack-in-the-box, and from the day "the hand of the potter shook" crash went the vessels of clay.

In the above number of cases given by Dr. Henry, he especially excludes those "coming at sick call." Dr. Meenes, the consultant, states "there were about five hundred prisoners and *attachés* at the penitentiary, and almost every man, woman, and child there was affected with the epidemic." For all affected, therefore, the rate of mortality would be but three per cent. Now the one thousand deaths in the city should in ordinary cholera epidemics mean about two thousand cases of statistic cholera. Let us see what this number of deaths signifies, when compared with the estimated total number of those affected in the prison, giving the three per cent. rate of mortality. The city of Nashville had in 1880 a population of 43,350; in 1870, 25,865, showing a yearly average gain of 1,749; this would make the population in 1873, in round numbers, 31,000.* The death-rate in the penitentiary would require that there should have been 33,333 cases of all grades of the disease in the city of Nashville in order to give one thousand deaths. Let any one who at this late date would arise and say that the disease prevailing in the Tennessee Penitentiary during the epidemic of 1873 was other than malignant Asiatic cholera kept in check by the continuous administration of quinine by the mouth in sufficient doses be anathema! If there is any reasoning in therapeutics, either by analysis or by synthesis, the American method that has done so much, or the Continental that has promised so much, with vigilance, activity, and bravery, the mortality from cholera should not in the United States exceed five per cent. There is no logical escape from the Tennessee Penitentiary.

If it be asked, Is it not strange that the quinine treatment in cholera has been so long overlooked? a proper reply would be after the manner so highly recommended by Benjamin Franklin: Is it not strange that the learned Scotch forebears of some of us should for so long a time have sat reading the classics, and at the same time irritating out-of-reach portions of cuticle with an especially devised implement, the sulphur beds of Hecla the while almost within scent? Is it not strange that a Boston dentist should have discovered the anæsthetic uses of a drug that has been known from the time of Raymond Lully, and that the wise men of Boston of that day should not have been able to discover the discoverer of etherization? Is it not strange that after forty years of wandering in the opium wilderness it should have been pointed out by Lawson Tait that a dose of salts was best for peritonitis? Is it not strange that engineers should aver the principle of the cantilever bridge to have been utilized in Great Britain during the dark ages, but that nothing can yet be found of it

* If as great a battle had been fought and won by any general in our late war on like mistaken premises in his reasoning, he would be in training as a presidential candidate, if he had not already twice held the office.

* Estimated at 27,000 only in *Medical Record* April 29, 1893.

in the *Encyclopædia Britannica*? Is it not strange, if true (as Lieutenant Bent, of St. Louis, Mo., avouches), that old log books show the north pole to have been sailed over and past a degree or more, a hundred years ago; that they should have gone further for whales in the eighteenth century than for glory since? Is it not strange that a tanner from these parts, who afterward tanned his way to Appomattox, should in his first skirmish make the practical discovery that "in every engagement comes a time when both sides are weary of the battle, and then the commander who pushes the fight wins it?"

It is a fair question, however, *why* the above favorable results came to be overlooked. The answer can probably be best given in tabular form.

Cholera treated by Faulty Methods of Quinine Administration.

	No. of cases.	Deaths.	Per cent. of mortality.	Method.
Mr. Spencer Wells (<i>Med. Times and Gaz.</i> , Oct. 8, 1853)	4	4	100	Intravenous.
Dr. E. A. Parks (<i>Med. Times and Gaz.</i> , Oct. 8, 1853)	2	2	100	Intravenous.
Belleisle hospital ship (<i>Med. Times and Gaz.</i> , 1866, p. 590)	19	12	63	Hypodermic.

To this must be added the belief that the remedy was generally used in the Mississippi Valley in 1873, when used at all, in insufficient doses by the mouth, or more usually by hypodermic method. My reasons for believing the hypodermic method of quinine administration to have been chiefly used in the city of Nashville, Tenn., during that year have been stated elsewhere. There are no better names given in the profession than the above of the dead physician and the yet living surgeon. Their experiments were made, it must be remembered, thirty-one years prior to the discovery of the Koch germ and of its habitat in the human body, and without a doubt were undertaken to obviate the oft-urged objection that remedies were not absorbed in cholera. Nevertheless, in the above can doubtless be found the reason why Professor Koch, while discussing the effects of iodine and other remedies, fails to say a word favorable to the use of quinine in the disease, *because he knew that it had failed in curing it.*

So far as I can find any reference to quinine at all in the epidemic of 1884 in Europe, it was almost to a certainty used hypodermically. The only mention of its use in the last European epidemic, in sources available to me, was in Russia, in the form of so-called "Botkin's drops."*

Twenty to thirty drops of this mixture was the adult dose, containing two thirds and one grain of quinine respectively. However effectual these small doses might be as an anti-emetic, or in controlling diarrhœa in a mild form of the disease, they are insufficient for fully developed cases. One may dam the waters of the Ganges no more than those of the Nile "with bulrushes." Ten grains

in powder, diffused through a small quantity of water, or in acid solution, at hourly intervals, until twenty to forty grains have been given, afterward *pro re nata*, should be the ordinary instructions; the same dose at half-hourly intervals for a sufficient time in collapsed or in *foudroyant* cases; smaller doses, perhaps, at longer intervals in choleraic diarrhœa. There should certainly be retained, of other treatment, appliances for the restoration of heat; saline hypodermoclyses to supply lacking serum to the blood; morphine hypodermics to allay pain and cramps, with enteroclyses of quinine where, as past experience shows rarely to have been the case, the remedy is vomited; and in the sequent enteritis or otherwise persistent diarrhœa, calomel in small doses should not be lost sight of. That by so treating our patients we may hope for a mortality in collapsed and collapsing cases of about fourteen to twenty-five per cent. only; that by earlier administration of the remedy, instead of the use of other agents that have heretofore permitted so many cases to run on into collapse and death, we may reduce the mortality in such cases to two to five per cent. only, seems a fair assumption for the best of reasons—*i. e.*, it should be so, and so far it always has been so.

THE IMPROVED HIGH-TENSION COIL.*

By A. D. ROCKWELL, M. D.

THE induction apparatus shown in the accompanying cuts was somewhat crudely illustrated in a previous number of this journal.† It proved so thoroughly satisfactory, and was such a decided improvement both as regards the variety of effects obtained and the readiness with which induction currents of both high and low tension could be utilized, that no pains have been spared to improve its mechanism and make it available for outside as well as office use. The new and important feature that I claim for this apparatus is the combination and concentration in a single coil of all the different lengths and thicknesses of wire necessary for every variety of quantity and tension that has become such an essential feature in the intelligent adaptation of electricity to diseased conditions, with the ability to increase currents of any quantity or tension from zero to the maximum effect desired. It seems hardly necessary, after so much has been said about the subject, to refer again to the extreme importance of correct information in regard to induction coils. There exists, however, so much misapprehension, and indeed, on the whole, such an absolute dearth of knowledge in regard to them, that the salient points can not perhaps be reiterated too frequently or too minutely. While the galvanic current is very much the same the world over, however generated, the so-called induced or faradaic current varies not only in its physical and physiological effects, but very markedly in its therapeutic properties, according to the construction of coils and the character of the initial force or voltage that operates through them.

* Read before the New York Neurological Society, June 5, 1894.

† May 13, 1893.

* The celebrated professor reported in 1871 a mortality of 17.3 per cent. only in cases treated with five-grain doses three or four times daily by the mouth, or eight grains given hypodermically when the remedy was vomited. From the result it is evident that, as usual in cholera, it proved to be anti-emetic.

A short, thick coil requires only a single cell, but the current is of low tension, and has but little efficiency in external applications through the high resistance of the

when applied internally through the low resistance of the mucous membrane, may be unbearable when applied externally through the high resistance of the skin.

Fig. 1 represents the apparatus complete in portable shape, while Fig. 2 is a view of the right end of the coil with the figures representing in yards the length of the different combinations.

The different sizes of the wires, Nos. 21, 32, and 36, are also designated. The various sections of wire can be selected by placing the two arms upon any two buttons, and whatever buttons the arms are placed upon, the length and sizes of wire as stamped between the buttons will be included in the circuit. With this compound circle switch one can readily select the entire coil with its varying sizes of wire and length of seven thousand seven hundred feet, or the last section, or any intermediate section. A study of this compound circle switch will show that there are twenty-one possible combinations, equaling an apparatus having twenty-one separate spools.

These combinations are as follows:

					Yards.
1.	84 yards No. 21 wire				84
2.	154 " " "				154
3.	84 " " " plus 154 yards No. 21				238
4.	300 " No. 32 wire				300
5.	500 " " "				500
6.	300 " " " plus 500 yards No. 32				800
7.	500 " No. 36 wire				500
8.	1,000 " " "				1,000
9.	500 " " " plus 1,000 yards No. 36				1,500
10.	154 " No. 21 wire	300 " No. 32			454
11.	84, 154 " " " "	300 " " "			538
12.	154 " " " " 300, 500	" " " "			954
13.	500 " No. 32 wire	500 " No. 36			1,000
14.	84, 154 " No. 21 wire	300, 500 " No. 32			1,038
15.	300, 500 " No. 32 wire	500 " No. 36			1,300
16.	154 " No. 21 wire	300, 500 " No. 32	}		1,454
		500 " No. 36			
17.	84, 154 " No. 21 wire	300, 500 " No. 32	}		1,538
		500 " No. 36			
18.	500 " No. 32 wire	500, 1,000 " No. 36			2,000
19.	300, 500 " " "	500, 1,000 " " "			2,300
20.	154 " No. 21 wire	300, 500 " No. 32	}		2,454
		500, 1,000 " No. 36			
21.	84, 154 " No. 21 wire	300, 500 " No. 32	}		2,538
		500, 1,000 " No. 36			

Although these different currents are distinctive, it is not to be supposed that they all differ materially in their physical or therapeutical effects, or that the differential indications for the use of the majority of the combinations are of importance. For all practical purposes four or five coils are all that one can possibly be called upon to distinguish between. In its portable form the apparatus is run by four dry cells arranged in the box under the coil, but to obtain the full effects of the entire coil it is necessary to have cells that in number and size render it unsuitable for transportation.

The Death of Dr. John Milton Todd, of Bridgeport, W. Va., took place on Thursday, the 2d inst., after a long illness. The deceased was in his sixty-ninth year, and had long been a prominent practitioner.

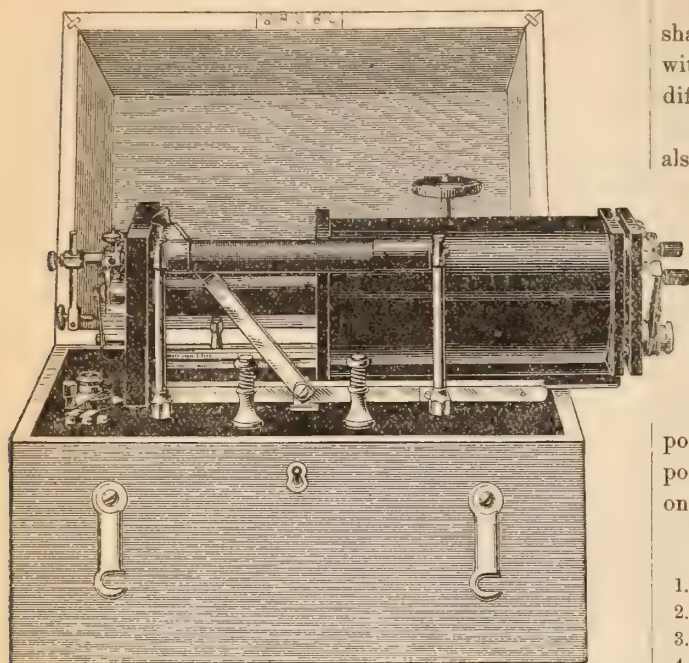


FIG. 1.

skin. A strength of current that would be imperceptible when externally applied may be powerfully and even painfully felt when applied internally through the low resist-

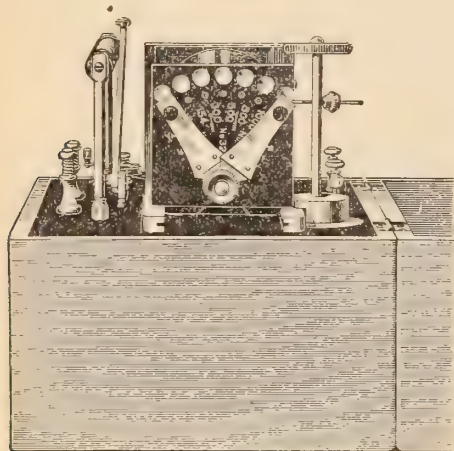


FIG. 2.

ance of the mucous membrane. It is in the bipolar and internal use of these induction currents of quantity more especially (although the same rule applies in lesser degree to currents of tension) that it becomes necessary to always increase the current from absolute zero. Any apparatus that is deficient in this respect is useless, and often worse than useless, for this method of application.

A long, thin coil requires several cells to operate it, the number being dependent upon the length and fineness of the wire.

The interesting point is that the conditions upon which the effects of the two coils are based are reversed. A current from the long, thin coil which is imperceptible

PIPERAZINE IN NEPHRITIC COLIC.

By JOHN MCKINLOCK, M.D.,

VISITING GYNÆCOLOGIST TO WEST SIDE FREE DISPENSARY, CHICAGO.

FROM a study of the literature of piperazine, embracing the experimental research of Finzelberg, of Berlin, and other noted chemists, supplemented by the reports of eminent clinicians both of Europe and this country, the writer was induced to prescribe it in a case of severe renal colic incident to the gouty diathesis. The result so far exceeded his most sanguine expectations that he was led to use it in three subsequent cases, with such benefits so quickly obtained as caused him to record the cases under his observation.

While four patients is an exceedingly small number from which to extract clinical data, it appears to be eminently justifiable from the very pronounced brilliant results obtained in all the cases cited.

CASE I.—Mr. S., aged forty-nine years, German, weight two hundred and forty pounds; railroad manager; full habit; always enjoyed good health up to three years ago, when he complained of pain in small joints of the feet, ascribed to rheumatism; always has been a high liver with little or no exercise; habits sedentary. Up to the time he came under treatment had been through three typical attacks of renal colic, and had been treated for gout previous to these attacks many times, the toes and knee joints being principally affected, the leg being flexed on the thigh and immovable for a period of two weeks at a time. Each subsequent attack increased in severity and lasted many days longer than the preceding one. At the time I first saw him he was suffering excruciating pain in the region of the right kidney, with daily quantity of urine voided only a third of the normal quantity. Up to the fifth day after the onset of this attack fifteen hypodermics of a quarter of a grain of morphine sulphate had been given without more than slightly dulling the keen edge of the pain; in addition, all the uric-acid solvents, alkaline waters, salts of lithium, etc., were tried without any appreciable success. When, on the sixth day, the advisability of an operation was discussed, it was decided that we would employ piperazine for twenty-four hours, and be guided by results obtained at the end of that time. I incorporated phenocoll, for its well-known effect on the nerves, with ten-grain doses of piperazine, administered every two hours until two drachms of the latter had been taken; this was given in connection with a five-grain tablet of lithia. The next, or seventh day, eighty-four ounces of urine were voided, showing large particles of uric acid macroscopically; the temperature, which had previously been 100.5°, fell to normal, but some very slight pain continued for twenty-four hours longer, during which time greater fragments of uric acid were easily seen in the urine. The actual time of treatment with piperazine was two days, with a complete subsidence of the symptoms. The patient lost twenty-six pounds. First twenty-four hours, two drachms of piperazine; second, seventy-five grains.

CASE II.—W. T., weight one hundred and ninety pounds, aged fifty-eight years, president of a large company; phlegmatic temperament; high liver; confined to the office all day; no physical culture. First attack eight months ago; treated in the usual way; confined in bed ten days; pain acute most of the time; hypodermics of morphine failed to relieve; small-sized stone passed. Second attack six weeks ago; second day, temperature 100°. The patient was unable to lie down, so great was the pain. Five grains of piperazine and five grains of pheno-

coll were administered in lithia water from the onset of the attack, given every three hours for three days. When small fragments of uric acid were voided the temperature fell to normal; patient kept on ten-grain daily doses for a week longer; pain entirely subsided at the end of the third day. Examination of urine daily showed decreasing quantity of uric acid; after seven days' treatment entire absence.

CASE III.—E. S., aged forty-four years, weight two hundred pounds. Had taken a course of alkaline waters at many of the famous resorts, only mitigating slightly his condition, which was similar to that of Case II, without positively affording the desired relief. He had suffered with renal colic for four years. Although concretions of uric acid were voided, the attacks of colic continued at intervals. When first seen he had been in severe pain for eight hours, followed by marked hæmaturia, which lasted only one day.

The pain would not yield to morphine, and was only subsided after four days' treatment with five grains of piperazine combined with five grains of phenocoll every two hours. Uric-acid fragments were detected in the urine by the naked eye on the third and fourth days.

The patient was advised to continue treatment with small doses for a few weeks, but, as he was free from suffering, thought it was not necessary, and decided, on account of his marked gouty tendency, to go to Carlsbad for three months. Having passed through many such sieges previously, and realizing that the attack was markedly cut short in this instance, he asked for a copy of the prescription that he might have it filled in Europe, if necessary.

CASE IV.—Mrs. J., aged sixty-four years, weight two hundred and forty pounds; phlegmatic temperament; no physical exercise; high liver; gouty joints; had been afflicted with nephritic colic at intervals of a few months for several years. Attacks comparatively slight, never having passed a calculus, and usually subsiding entirely after a course of alkaline treatment for three or four weeks. Occasionally hæmaturia of from one to three days' duration followed the outbursts of the colic. When first seen in one of these attacks pain was very intense, temperature 100°. A hypodermic of a quarter of a grain of morphine sulphate and one two-hundredth of a grain of atropine was administered without relief, repeated in half an hour. When piperazine in five-grain doses with same weight of phenocoll was given every two hours for two days, diuresis was considerably increased, pain ceased, and temperature fell to normal in the first twenty-four hours after its administration. Uric-acid deposits were discovered with the naked eye in the urine, with a continued evacuation of concretions for three days. The patient continued under treatment for two weeks, fifteen grains a day. Uric acid was entirely eliminated and general condition better than for years.

My slight acquaintance with this drug leads me to a desire for further cultivation, for in my hands it certainly has been a friend coming in the "time of need."

The first case mentioned was an unusually severe one, and in this the most pronounced effects were marked. It will be noticed that within forty-eight hours three drachms and a quarter were administered, producing immediate results, showing the wonderful solvent power of the drug. This large dose produced no untoward symptoms other than a slight involuntary muscular twitching of the extremities, which subsided entirely at the end of two days.

Dr. David D. Stewart says: Summing up the properties of piperazine in the uric-acid diathesis, gravel, calculi, etc.—

1. Piperazine dissolves concretions not only of uric acid

but also of phosphates, etc., in consequence of its power of disintegrating the mucus or albuminoid cementing material which binds them together.

2. Piperazine relieves renal colic and other local pain associated with the formation of concretions in the urinary tract, owing to its power of dissolving the sharp edges of calculi and giving them a slippery character.

3. As a consequence of the effect indicated above, piperazine determines the evacuation of "stones" from the kidneys, ureters, or bladder very soon after administration and before time has elapsed for complete solution.

4. Piperazine is not only superior as a solvent of uric acid and urates to all previous remedies, but also is free from their disadvantages.

5. Piperazine does not render the urine alkaline and so favor the deposition of phosphates.

6. Being free from caustic or irritant action, piperazine has been used successfully and without any ill effects for the irrigation of the bladder in the treatment of vesical stone.

VENETIAN BUILDING, June, 1894.

MYCOSIS TONSILLARIS.*

By C. E. BEAN, M.D.,
ST. PAUL, MINN.

THE occurrence of mycosis tonsillaris is sufficiently rare to merit special mention when the disease is encountered. The older authorities on laryngology make no mention of it, and it has only lately become recognized, notwithstanding the first case was reported by B. Fraenkel† in 1873. Since then it has been reported by quite a number of writers, mostly foreign, it being rather infrequently met with in this country.

Lennox Browne‡ says the disease is rare in England and that he has seen very few cases of fungoid growth in the pharynx, but that in every instance the pathological report was that leptothrix was the prevailing parasite present.

Decker and Sieffert made a report to the Medico-physical Society of Würzburg in January, 1888, of thirty-four published cases.

Oltuszewski§ reports a case occurring in a patient at the age of sixteen where there was intense fever, and where, after six months' treatment, fresh colonies of leptothrix constantly reappeared. This case was treated by removing the deposit with forceps and gargles of corrosive sublimate (1 to 2,000).

The disease is due to the presence of the specific spore upon some portion of the mucous membrane. Its primary source is not so easy of definition, although the anterior part of the mouth is probably the immediate source of the spore which gives rise to the fungous development in the mucous membrane of the throat, it having been found in

large quantities in the masses of decomposition within and between the teeth. Impaired general health is no doubt a prominent predisposing factor in the ætiology of the disease, for the *Leptothrix buccalis* is probably more or less present in all buccal secretions.

In a case of pharyngo-mycosis Schmiegelow, of Copenhagen, found a bacterium not yet described and called it the *Bacillus anthracoides buccalis*.

Hemenway,* in his cases, did not find a constant form of leptothrix, and doubts the evidence that the growth is a result of the leptothrix. Certainly *Leptothrix buccalis* is found in nearly if not all of these cases of mycosis; but then, on the other hand, this parasite is found in other parts of the buccal cavity where the fungus never grows.

The special variety found is the *Leptothrix maxima*, "an organization consisting of long, thick, or slightly curved filaments resembling the *Buccalis maxima*, of which it is probably a variety."

The location of the fungus is on "the tonsil, base of the tongue, posterior wall of the pharynx, and glosso-epiglottic pillars and folds."†

Bosworth‡ says the most frequent starting point is the faucial tonsil and that it is very rarely seen on the pharyngeal tonsil.

Semon reports a case where the growth was on the soft palate and uvula.

It is essentially a chronic disease, though it may be developed during an attack of acute amygdalitis.

Metzner§ reports a case following acute amygdalitis where death occurred in two days. The post-mortem examination revealed purulent mediastinitis, pericarditis, and purulent pleuritis; also an abscess in the right tonsil.

While usually a disease of adult life, it has been observed by Baginsky|| in a child twelve years old and by Heryng^ in a patient aged sixty-two. Damoschino◇ regards an acid reaction of the oral secretions as favorable to the development of the spores.

With these cases there is an unusual amount of mental depression which seems to be characteristic of the disease, thus increasing the deterioration of the general health.

The following case illustrates some of the peculiarities of the disease:

Mrs. —, aged twenty-six years, was referred to me by a brother practitioner in May, 1893. She had been subject to attacks of follicular amygdalitis for seven years and had had the throat burned with nitrate of silver on several occasions. The last attack had begun two months before she consulted me. There had been a great deal of pain in the throat and very high fever, and the usual remedies for acute amygdalitis had been used with little benefit. The pain and the fever had gradually but slowly subsided, the white spots remaining on the tonsils and causing a considerable degree of irritation in the throat with a constant desire to cough. The disease had at this time extended

* *Medical News*, Philadelphia, January, 1892, p. 38.

† *Ruault. Sem. méd.*, 1893, No. 17.

‡ *Diseases of the Nose and Throat*, vol. ii, p. 189, 1892.

§ *Journal of Laryngology and Rhinology*, November, 1889, p. 463.

|| *Protocol. der Berl. klin. Gesell.*, May, 1876.

^ *Zeitschrift für klin. Med.*, 1884, vol. ii, p. 363.

◇ *Gazette des hôpitaux*, Paris, 1888, vol. iii.

* Read before the American Laryngological Association at its sixteenth annual congress.

† *Berl. klin. Woch.*, 1873.

‡ *Diseases of the Throat*, third edition, London.

§ *Gazette Lekarka*, No. 4, 1888.

to both tonsils and base of the tongue and was especially pronounced high up in the angle between the anterior and posterior palatine folds. In this latter place the disease was the most difficult to eradicate. It presented itself in small conical-shaped elevations to the number of fifty or sixty, entirely separate and distinct, which were extremely hard and difficult to remove. The fungus was, under the use of cocaine, removed thoroughly as far as could be by means of a curette, and the galvano-cautery point applied to the parts. By September of 1893, or four months after treatment began, there was complete disappearance of the fungus and there has been no return up to this date.

At the same time she was given iron, strychnine, and quinine internally and alkaline gargles on the theory that the leptothrix germs only occur when there is an acid reaction to the oral secretions.

Some of the points of deposit of the fungus were treated as many as a dozen times before it was entirely removed.

Various modes of treatment have been suggested for this disease. Rualt advised one of his patients to smoke ten cigarettes daily, and with no other treatment the patient in two weeks showed manifest improvement.

Dembecki proved upon himself the value of tobacco smoke in curing in three months a case which had resisted every other form of treatment.

Baber* reports a case affecting both tonsils and base of the tongue that had improved by the persistent painting with alcohol and the removal of the deposits containing leptothrix.

Nitrate of silver, tincture of iodine, and bichloride of mercury locally have all been recommended; but the use of the curette, followed by applications of the galvano-cautery, with attention to the general health, will do more to accomplish a successful cure than any other combination of remedies.

REPORT OF A CASE OF A FOREIGN BODY (COCKLEBUR) IN THE LARYNX.†

BY CHARLES M. SHIELDS, M. D.,
RICHMOND, VA.

ON the morning of December 4th last Mr. W. M. P., of Halifax County, Virginia, came into my office breathing with difficulty, and with a most anxious expression of countenance. In a voice reduced to a hoarse whisper he made the following statement: He said that while riding through his farm the afternoon of the preceding day he had seen some dogs chasing one of his hogs. He rode after them to rescue the animal until the bushes and undergrowth prevented his proceeding further on horseback, when he dismounted and continued the pursuit on foot. The exercise caused him to breathe rapidly with his mouth open. When just within reach of the animal he was suddenly stopped by feeling that he had drawn something into his throat which made him gasp for breath and prevented his calling for help. In looking about him for the cause, he found that he was in the midst of bushes filled with cockleburrs that had been rendered very dry and loose by the recent frosts, and

the burs were easily dislodged by his movements. He at once rode to the nearest doctor, who shared the opinion that he had probably drawn one of the loose burs into his windpipe in his rapid efforts at breathing, but was unable to determine it positively. At his advice the patient took the first train to Richmond.

The patient was an exceedingly nervous man and had a most sensitive throat. His efforts at breathing, in addition, made it impossible to get even a glance at the larynx until a ten-per-cent. solution of cocaine had been repeatedly sprayed over the parts. Then the offending body was seen to be a cocklebur situated at the anterior commissure of the glottic space, its long axis lying antero-posteriorly. It was just below the surface of the cords, and had evidently been grasped by them just in the act of passing through. When the vocal bands, which with the surrounding tissues were considerably swollen, closed, they would cover from view all of the bur except some of its spurs which projected above.

As the subsequent efforts at removal showed, the grasping of the bur by the bands in such a small angle was so great as to firmly fasten it in position by forcing its spurs into the tissues. So closely was it adherent on both sides that no space was available for an instrument to catch hold. Mackenzie's and several other varieties of forceps opening laterally were tried; but for the above-mentioned reason and because of the excessive irritability of the throat causing closure of the glottis as soon as an instrument was brought near, a great many unsuccessful attempts were made. Then a loop of stiff wire run through a properly curved cannula was used with the hope that it could be pulled up on the bur and tightened; but the contraction of the quickly closing bands invariably flattened the loop. Trying to engage its prickles by cotton wrapped on a curved probe was equally unsuccessful. It is a matter of interest in connection with this expedient, as showing how practical measures are suggested to the uneducated as well as the educated mind, that the patient advised me to try the cotton in very much the same way as was reported by Crawley in 1886 in a somewhat similar case. Then a blunt, curved curette, large enough to go over the body, was passed below it, but did not bring it up on being withdrawn. In fact, I was afraid of making much effort with this last instrument, or any other that would not hold it firmly, lest it might be only dislodged and drop into the bronchi. The numerous efforts at removal had now exhausted the patient, whose apprehensive fear of suffocation constantly increased, and I resolved to do an external operation. As one last effort prior to that, however, Schrötter's tube forceps, which had previously been tried, was again used. This time, after passing it through closed, and as the vocal bands tightened on it, I opened the blades forcibly and drew them forward, forcing them between the bands and the bur, and then, closing them, withdrew the forceps quickly and had the satisfaction of bringing the bur out entire, and it is here presented.

In looking over the literature of the subject, I have found four other cases of cockleburs in the larynx reported. One, by J. N. Outen, in the *American Practitioner*, 1884. Another, by Max Thorner, in the *Cincinnati Lancet-Clinic*, July 24, 1886, which was removed by Voltolini's sponge method. A third, by Crawley, in the *Philadelphia Medical News*, extracted by means of cotton wrapped around the index finger of the operator, entangling the prickles in its meshes. The fourth, reported in the *St. Louis Courier of Medicine*, 1884, by E. Van Note, in which laryngotomy was necessary for its removal.

* *Journal of Laryngology and Rhinology*, February, 1888, p. 91.

† Read before the American Laryngological Association at its sixteenth annual congress.

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SENSORY WARNINGS OF EPILEPTIC SEIZURES.

IN one of his interesting Neurological Fragments, published in the *Lancet* for July 28th, Dr. J. Hughlings Jackson relates the following case: A man, twenty-one years old, consulted him in March, 1882, for epileptic attacks. The first attack began with a noise, an auditory warning; he became deaf and could see people speaking to him, but could not hear them. He became unconscious and bit his tongue, and foamed at the mouth and struggled; about ten minutes afterward he became partly conscious. He had ten or twelve seizures, in some of which he bit his tongue. A few nights before the first attack, he walked in his sleep, as he expressed it, and remembered having heard a beating noise, and was partly sensible. He walked from his own bed to his brother's and changed the pillow. These actions were, no doubt, says Dr. Jackson, evidence of a prior epileptic attack and not ordinary somnambulism. During the day he would have slight attacks which he called symptoms. He had three or four of them in a day, and in them he heard strange noises, became deaf, and was not able to speak. This condition lasted for three or four minutes, but he did not become unconscious, and he stated that he was not even defectively conscious. The strange noise was like a beating, as if time were being marked; it was rather loud and seemed to be in both ears and in his head. There were no spectral auditory words with or after the noise during this attack.

The author particularly wishes to draw attention to the patient's remark that every time the noise came—that is, in every attack—he had the feeling that he had heard the noise before and knew what was coming next. In the intervals between the paroxysms there was no deafness. The patient continued to have both slight and severe attacks.

The author gives the following facts from notes taken in August, 1883, which refer only to slight seizures. They would come on three or four times a day, and in these the patient would be partly unconscious. The auditory symptoms were: 1. Crude sensation: there was the noise, but not so loud as it used to be. 2. Spectral auditory words: he now heard words in his attacks—that is, there was what is called hearing voices—auditory spectral words. His hearing at the time was at least defective; he could not hear words actually spoken, although he could see people speaking. He had the feeling that the words, which the author calls spectral, were remembered. The author thinks that the deafness was the ordinary general deafness and not solely the special imperception called word-deafness. There may have been word-

deafness and also deafness to all sorts of sounds. 3. Speech symptoms. He could not speak, but made some articulatory noise; he could not think of the word he wanted to say. 4. Writing. He was a shorthand writer, and the seizure sometimes came on while he was writing. He went on writing while in this condition, but, in reality, wrote no words and made no proper combinations of letters. 5. Reading. He could see letters well, but could not read. There was no general defect of sight, but that special imperception called word-blindness. He carried a newspaper about with him to test himself; he would, if attacked while reading, go on in the sense of seeing the words and following the lines, but he did not know what he was doing. The author asked the patient to write down for him his spectral words, and he brought a paper with combinations of letters which were not words at all; he could not express himself in these attacks. The value of these combinations of letters, says Dr. Jackson, is that they are at least curious evidence that he was not unconscious, even if he was defectively conscious in his slight seizures.

The author thinks that it is well to consider that the warning in any paroxysm signifies the seat of a discharging lesion, that the warning is in that sense localizing. In some cases epilepsy begins with warnings of smell, in others with warnings of color, and in others with warnings of noise. It should also be recognized that there are in these cases three varieties of cerebral paroxysms—one depending on a discharging lesion of a cortical center for smell, another on a lesion of a cortical center for vision, and a third on a lesion of a cortical center for hearing. In the case related the author thinks there was a discharging lesion of some part of the auditory center of Ferrier. The discharge presumably spread from this fulminating point to normal cells—not necessarily to those morphologically nearest, but rather to those physiologically nearest—those normal cells which are united to the highly unstable cells of the discharging lesion by lines of least resistance. Probably in this case several of the phenomena were the after-effects of the discharge; they were correlative with exhaustion of cells discharged in the paroxysm, and were metaparoxysmal, methepileptic. Very probably there occur cerebral paroxysms with an auditory warning without the special imperceptions, word-deafness or word-blindness, and without inability to speak. Much, no doubt, says Dr. Jackson, depends on whether the discharging lesion is a part of the right or of the left half of the brain. Cerebral paroxysms with the phenomena mentioned occurred in one case under his observation without any sort of auditory warning.

THE CHANGES PRODUCED IN LIVER CELLS BY THE ACTION OF SOME ORGANIC AND INORGANIC COMPOUNDS.

No. 334 of the *Proceedings of the Royal Society* contains an account of some experiments made by Dr. T. Lauder Brunton and Dr. S. Delépine, of London, who state that their object was to ascertain the action of drugs on the cells of the liver and

to connect, if possible, the changes in the cells with the physiological action of the drugs and their chemical structure. The following drugs were selected by Dr. Brunton as being the most suitable for this investigation: Benzene, phenol, toluene, aniline, toluylene diamine, chrysophanic acid, pilocarpine nitrate, atropine, ammonia, ammonium chloride, nitric acid, and sodium iodide. The various appearances which the authors observed as the result of the purely physiological stimulation of the liver produced by the ingestion and digestion of a meal, and the most important changes indicating various states of activity were: 1. The size of the cells. 2. The distinctness of the mitoma and of the cellular cleavage. 3. The size and arrangement of the meshes of the mitoma of the cells. 4. The size of the biliary canaliculi. 5. The amount and distribution of the glycogen in the cells and in the lobules of the organ. 6. The amount and distribution of granules giving the reaction characteristic of inorganic ferric salts.

A number of experiments are related demonstrating the appearances produced in the liver soon after the administration of the compounds mentioned above, either subcutaneously, by the rectum, or by the mouth, to rabbits that had taken a moderate amount of food (an ounce and a half of carrots from seven to nine hours before death) and to rabbits that had not been fed for at least twenty-four hours before death. In order to estimate the changes produced, the organs of the animals to which the drugs had been administered were compared in each case with those of animals in the same stage of digestion, but to which no drug had been administered. The effect which the administration of various drugs has on the distinctness of the cellular mitoma and on the distribution or arrangement of that mitoma and of the paramitoma resembles, in the case of a certain number of drugs, that of pilocarpine, and in others that of atropine. The first drugs may be said to stimulate glandular activity, the latter to restrain it; only a few of those experimented with seemed to have neither a stimulating nor a depressing action. On this basis the writers subdivide the compounds as follows: 1. A stimulating or excito-secretory group, with pilocarpine as the type. 2. A neutral group. 3. A depressing or depresso-secretory group, with atropine as the type.

Of the excito-secretory group, the following compounds produced changes in the mitoma of the cells declining in intensity in the order of enumeration: Toluene, benzol, sodium iodide, pilocarpine, chrysophanic acid, ammonium chloride, toluylene diamine, and nitric acid. Aniline seemed in one case to have a stimulating effect, but this was doubtful. No drug was found altogether neutral, but two drugs seemed to have little depressing, and still less exciting, action, although they evidently produced degenerative changes in the cells; in the doses used, they probably acted too powerfully as poisons. These compounds were aniline and phenol. The following compounds belong to the depresso-secretory group: Phenol, atropine, and ammonia.

In each of these two great groups it was possible to recognize marked differences based on the influence which the drugs had on the storage of glycogen, and on the accumulation of

compounds giving the reaction of inorganic ferric salts in the liver. In the excito-secretory group, sodium iodide, toluylene diamine, chrysophanic acid (toluene?), and (ammonium chloride?) caused a marked increase of glycogen in the liver, and (ammonium chloride?), nitric acid, pilocarpine, and benzol gave rise to no marked increase of glycogen, but sometimes even to a diminution. Sodium iodide, toluene, and toluylene diamine caused a very marked diminution in the amount of free iron in the liver, and ammonium chloride, nitric acid, pilocarpine, and benzol (in the fed liver) caused a diminution in the quantity of iron, but not to the same extent as the first, and the iron was often so distributed as to remind one of the appearances observed in an active liver. In one case only (in the fasting liver) benzol caused a doubtful increase of iron. In the group of depresso-secretory compounds, ammonia caused a diminution of the glycogen and an increase of iron. By its influence on the accumulation of glycogen and of iron, phenol acted distinctly in the same way as the depresso-secretory compounds—thus, it caused a diminution in the glycogen and an increase in the iron. Aniline caused little change in the glycogen, but a great accumulation of iron in one case. The action of aniline evidently requires to be studied more specially. Atropine caused a slight diminution in the glycogen and little change in the iron.

The authors are satisfied that much is to be learned of the affinities of drugs and of their physiological action by the methods which they have been using in this study. The anticipation of unknown difficulties in a field practically new has caused them to spend much time in observations many of which have proved useless, and they think it would be unwise in the present state of the investigation to attempt to give more dogmatic conclusions than the foregoing.

MINOR PARAGRAPHS.

THE BRITISH MEDICAL ASSOCIATION.

THE recent meeting of the British Medical Association can be called an average one, in regard both to attendance and to scientific interest. No very new or striking contributions were made, but the papers were many of them well written and up to date. The division of labor by which all sectional work is done in the morning, while the afternoon is reserved for general meetings, has been employed here to advantage. The social events have assumed a very great importance, and threaten to interfere with the scientific interest of these meetings.

THE MEDICAL CORPS OF THE NAVY.

THE difficulty of filling vacancies by suitable appointments to the rank of assistant surgeon is again attracting attention, and is still largely imputed to the loftiness displayed by the line officers toward those of the staff. There is, of course, no justification for this irritating state of things, but it is not easy to see how it can be overturned speedily. It is to be feared that no more expeditious way of ameliorating the assistant surgeon's lot can be employed than that of trusting to the slow action of time.

QUININE IN THE TREATMENT OF CHOLERA.

DR. FULLERTON'S article entitled *Is there a Better Remedy in Cholera?* published in this issue, seems to us more than ordinarily noteworthy. We think the author brings forward in support of his conviction that quinine, properly used, has a decided remedial action in Asiatic cholera evidence that is quite sufficient to warrant further trials of the drug.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending August 14, 1894:

DISEASES.	Week ending Aug. 7.		Week ending Aug. 14.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	22	3	37	4
Scarlet fever.....	31	3	30	7
Cerebro-spinal meningitis....	0	0	0	0
Measles.....	20	2	22	2
Diphtheria.....	129	27	123	35
Small-pox.....	6	1	2	1
Tuberculosis.....	54	93	100	90

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from July 29 to August 11, 1894:*

STARK, A. N., First Lieutenant and Assistant Surgeon, now at Fort Sam Houston, will proceed to Camp Eagle Pass, Texas, and report for temporary duty.

WINTER, F. A., First Lieutenant and Assistant Surgeon, is granted leave of absence for one month, to take effect about October 1, 1894, with permission to apply for an extension of one month.

WOODHULL, ALFRED A., Lieutenant Colonel and Deputy Surgeon General, is granted leave of absence for one month and twenty days, to take effect on or about August 15, 1894, with permission to leave the United States.

WOODSON, R. S., First Lieutenant and Assistant Surgeon, is granted leave of absence for one month, to take effect about August 6, 1894, with permission to apply for an extension of one month.

A board of medical officers to consist of HAVARD, VALERY, Major and Surgeon, HOFF, JOHN VAN R., Major and Surgeon, and TORNEY, GEORGE H., Major and Surgeon, is, by direction of the Secretary of War, appointed to meet at West Point, N. Y., on August 15, 1894, or as soon thereafter as practicable, for the physical examination of the cadets of the first and third classes, the cadets of the second class on their return from furlough, and such other cadets of the Military Academy and candidates for admission thereto as may be ordered before it.

CARTER, W. FITZHUGH, Captain and Assistant Surgeon, is granted leave of absence for one month, to take effect about August 5, 1894.

WAKEMAN, WILLIAM J., Captain and Assistant Surgeon, is granted leave of absence for one month on completion of his duties at Fort Thomas Rifle Range, Kentucky.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the two weeks ending August 11, 1894:*

HAWKE, J. A., Surgeon. Detached from the U. S. Steamer Independence and ordered to the U. S. Steamer Charleston.

PARKER, J. B., Surgeon. Detached from the U. S. Steamer Charleston and ordered to the U. S. Steamer Independence.

McCORMICK, A. M. D., Passed Assistant Surgeon. Detached from the U. S. Steamer Charleston and ordered to the U. S. Steamer Monterey.

BRODERICK, R. G., Assistant Surgeon. Detached from the Mare Island Hospital and ordered to the U. S. Steamer Charleston.

HOPE, J. S., Assistant Surgeon. Detached from the U. S. Steamer Charleston and ordered to the Mare Island Hospital.

ARNOLD, F. W., Passed Assistant Surgeon. Detached from the U. S. Steamer Monterey and ordered to the U. S. Steamer Charleston.

DU BOIS, F. L., Medical Inspector. Detached from U. S. Steamer Chicago, ordered home, and granted two months' leave.

Society Meetings for the Coming Week:

WEDNESDAY, August 22d: Canadian Medical Association (first day—St. John, N. B.).

THURSDAY, August 23d: Canadian Medical Association (second day).

Letters to the Editor.

THE BLACK VOMIT OF PREGNANCY.

GREENVILLE, GA., August 6, 1894.

To the Editor of the *New York Medical Journal*:

SIR: In your issue of July 28th, containing a report of the proceedings of the American Gynæcological Society, appears the synopsis of a paper read before that body by Dr. Edward P. Davis, of Philadelphia, entitled *Fatal Nausea and Vomiting of Pregnancy*. The author, in describing the symptoms of this condition, lays special stress upon the coffee-ground-looking ejections from the stomach and the evil it portends. As bearing specially upon this particular symptom, I beg to report the following case:

Mrs. B., aged seventeen years, one month advanced in pregnancy, was seized with nausea and vomiting on July 10th. There being some doubt of the existence of pregnancy at this time (she having gone only a few days over the period of her expected menstruation), the usual remedies addressed to the stomach were administered with only slight palliation of the annoying symptom. Two weeks later I was again called to see her, when examination revealed an impregnated uterus. Remedies were immediately addressed to this organ, including cocaine, which had also been given *per os*. No abatement was at any time noticeable, and, although her previous health had been perfect, it required no prophetic vision to foresee the result if the vomiting was allowed thus to continue. Abortion was at once determined upon, pending which the ominous coffee-ground vomit appeared. The operation was hastened and speedily terminated without the least untoward result, hæmorrhage being practically *nil*. The vomiting soon ceased, as was expected, and, as she was cheerful and apparently doing well, I left, feeling assured that recovery was only a question of a very short time. Within six hours, however, I was again summoned, being informed by the messenger that the vomiting had returned. On my arrival I found the black vomit pouring forth almost incessantly and the nausea uncontrollable. Everything possible was done without the slightest amelioration of the dangerous symptom, when, finally, from sheer exhaustion she died the following morning.

This, in my opinion, serves to emphasize the statement of Dr. Davis, that nausea and vomiting in a pregnant woman, with the ejection from the stomach of coffee-ground fluid, denote an alarming and dangerous condition. E. B. TERRELL, M. D.

ARSENICAL POISONING AND THE MAYBRICK CASE.

DUBLIN, August 3, 1894.

To the Editor of the *New York Medical Journal*:

SIR: As the case of Mrs. Maybrick excites considerable interest in the United States as well as in this country, I desire to call attention to the new evidence lately procured and to ask how it affects the question of the cause of death?

I may perhaps remind your readers that Mr. Maybrick had been ailing and consulting the doctors for a considerable time before his last illness, and it seems now certain that at this period his wife had no arsenic in her possession. After death no arsenic was found in the contents of the stomach or intestines or in the fluid that ran from his mouth. The feces and urine had been tested for arsenic two days before death, with a negative result, and a like negative result was found on examining the bedding, etc., including a flannel shirt which he had ceased to wear two or three days before death. The outside estimate of the arsenic in the liver was a third of a grain for the whole liver; for the intestines the outside estimate was an eleventh of a grain. Traces were found in the kidneys, but no estimate appears to have been formed as to the total amount. No arsenic was found elsewhere in the body.

Now it is proved that Mr. Maybrick used to shake arsenic like pepper over the food that he took for his lunch at Norfolk, Va., and that on one occasion he said he was about to take enough to kill the witness (Captain Fleming). It is also proved that within three months before his death he procured about a hundred and fifty grains of arsenic from Mr. Blake, whom he told that he was an arsenic-eater and found it difficult to supply his needs in Liverpool, and that the small amount of arsenic that the doctors gave him only tantalized him.

Is the amount of arsenic mentioned greater than might have been expected in the case of a man of such habits, assuming, for example, that he had been accidentally killed? And is it too small for arsenical poisoning in the case of a man who indulged in arsenic so largely as a stimulant? A BARRISTER.

Proceedings of Societies.

BRITISH MEDICAL ASSOCIATION.

Sixty-second Annual Meeting, held in Bristol on Tuesday, Wednesday, Thursday, and Friday, July 31 and August 1, 2, and 3, 1894.

The President, Dr. EDWARD LONG FOX, of Bristol, in the Chair.

The Report of the Council showed the affairs of the association to be in a satisfactory condition. The revenue had been £35,367, or £1,223 more than last year, while the expenditure was £30,126, or £1,021 more than last year, leaving a surplus of £5,150, which had since been invested. At the end of December the total excess of assets over liabilities was £55,906. The number of members on the books last year was 14,703. Dr. J. Ward Cousins, president of the council, made some remarks upon present problems before the profession. He considered the employment of married women in factories was a question of importance, because the health of the future population of the country was connected with it. The returns clearly showed some supervision must be exercised in this

direction, and efforts were to be made to curtail the hours of labor of married women. Another question of great importance was in regard to proprietary medicines. The committee had been laboring in the direction of making the proprietors of medicines put the word poison on every package which contained poison, even in small quantities. They were compelled now to do that. He should also like to see some such system as they had in France, under which the whole prescription of the proprietary medicine was printed on the label. During the past year, Dr. Cousins stated, the Inebriates Legislative Committee had been very active, and had made a step in the right direction. A most influential deputation had waited on the Home Secretary with regard to the therapeutic treatment of habitual drunkards, the better accommodation of the poor, and the relaxation of the formality by which volunteers to retreats could be admitted.

Referring to the abuse of medical charities, Dr. Cousins hoped the investigations would be extended to the provincial hospitals, as there was as much abuse in them as in the metropolitan hospitals. It was his opinion that medical charities would always be abused until human nature was pulverized and made over again.

Criticism of the Journal of the Association.—A sensation was created by Surgeon-Major INCE arising and declaring that the *British Medical Journal*, the association's official organ, was not worthy of the association. He read selections that he maintained violated the amenities of life and declared that the *Journal*, as at present conducted, was unworthy of a set of gentlemen. Dr. Ince further complained of the undisguised personality of the editor of the *Journal*, and that to make room for his contributions the letters and articles of members of the profession were crowded out.

Mr. ERNEST HART, the editor of the *Journal*, agreed that impartiality should be shown in dealing with correspondence and other matters coming before the editor, and he had endeavored to follow this policy during his twenty-eight years of editorial work. It was very difficult, however, to convince those whose communications were not published that their rejection was due to questions outside personal feeling. He thanked Surgeon-Major Ince for having contributed to the gayety of the meeting.

Medical Aid Associations.—Mr. R. W. DOYNE complained of the working of these associations. An association paid a medical officer £200 or £250 a year to serve it; his remuneration was the same, no matter how many cases he attended; so much was paid by the members, and the balance went really into the members' pockets. He regarded that as a typical case of sweating medical men.

The President's Address.—This dealt mainly with the medical man and the State. We, as a profession, had to deal first with individuals and then with conglomerate bodies of men. It was ours to teach the authorities in the State what sanitary laws should be framed, and England might be congratulated on the fact that the Local Government Board numbered a skilled medical man among its highest medical authorities. With regard to vaccination, he regarded it as monstrous that in less than a hundred years from its birth the work of the immortal Jenner should be rendered partially ineffectual by the crazy cry of liberty on this subject. Bacteriology was revolutionizing the whole course of medical treatment. The coming generation of doctors would have their time taken up even more largely than in past years, in rendering persons proof against the attacks of disease. In no department of medicine was better work now done than in the investigations on the nervous system, which had rendered permanent utility to the well-being of the State. We now had a tolerably complete

knowledge of the motor physiology of the brain and of the centers of the special senses. That the differentiation of the special seat of the intellectual faculties had not yet been determined in detail might perhaps depend on their intimate relation to each other. The new idea of treating myxœdema led up also to the question of feeble-mindedness in children, cretinism, and especially sporadic cretinism, which was only myxœdema in childhood. Here, if anywhere, were prolific proofs of the subject of to-day's address—the benefit conferred upon the State by the investigations of the profession. During the last century the attention of medical men in all parts of Europe and in America had been turned to the differentiation of the various forms of cretinism and idiocy, and to the possibilities of amelioration of the physical and mental feebleness of such cases. The subject was too vast for anything beyond mere mention now, but it touched biologists on questions of heredity, surgeons with reference to the relief of synostosis, and physicians, legislators, and criminal lawyers in its various phases. We were at last obtaining more accurate data for work, by collecting real percentages of feeble-minded children in board schools, a work in which the association had borne no ignoble part. We were learning that, except in the case of the microcephalous, cranial developments did not help us much in these researches, nor even pathological appearances. The power of attention, and the consequent results of education, were almost the only trustworthy data for differentiation. But this benefit to the State, due mainly to members of the medical profession, obtained not only in raising some of these afflicted ones to a dim apprehension of the abstract, but many more to a condition in which they were, partially at least, able to earn their own living, and be no longer wholly a burden to the community. This question too touched the great subject of criminology, one that had suffered from its most ardent supporters. The criminal type, according to the notions of these learned men, would include too many of us to be of any practical use. And, after all, in England most certainly, the criminals who were unable from physical abnormalities to resist temptations to crime formed an exceedingly small portion of the convict population.

Professional influence should always be used against gluttony and drunkenness. We might not claim a vast number of the profession as total abstainers from alcohol, but we did claim the majority of it as examples and as teachers of temperance.

The Address in Medicine was delivered by Sir T. GRAINGER STEWART. His subject was Influenza. He described in considerable detail how the alimentary system, the hæmatopoietic system, and the circulating system were affected by the disease, and said that the respiratory system suffered changes more frequently in connection with influenza than any other organs of the body. Pneumonia was by far the most formidable sequel, and displayed marked differences of type from the normal course of the disease. For the discovery of the essential cause of the process we were indebted to Dr. R. Pfeiffer, who, during the epidemic of 1889-'90, had seen and photographed the bodies which were now known as Pfeiffer's bacilli.

Did the bacillus itself, which so abounded in the sputum, produce the catarrh of the respiratory tract? He believed that it did. We knew that the bodies of bacteria were capable of setting up inflammation and producing pus, and it was most probable that in the case of influenza the substances contained in the bodies of the micro-organisms so attracted white cells and produced the characteristic inflammatory changes. It seemed probable that the constitutional symptoms of influenza resulted indirectly, rather than directly, and that for several reasons: 1. That the bacteria were not found living, active, numerous in the blood and throughout the tissues of the body generally, and therefore could not be supposed to be operating so widely. 2.

That the symptoms corresponded to those that we knew to be due to such poisoning, or, in other words, that the analogy of diseases of which we could speak more positively pointed that way. If such was our conclusion as to the general symptoms which occurred in all cases of influenza, still more must it apply to the complications and the sequelæ. We had already traced and illustrated the chief groups of these; let us now go over them and see the bearings of each. Our first group included complications and sequelæ which were due to the action of other micro-organisms. How did the influenza process stand related to these? He believed in a considerable number of ways: 1. By affording a nidus in which germs might readily multiply. 2. By lowering the general power of resistance to micro-organisms. 3. It was possible that some of these might illustrate the principle which was known to scientific workers as mixed infection.

Applying knowledge gained by analogy to the influenza processes, we seemed entitled to conclude: 1. That the bacillus, which was not widely disseminated throughout the body, produced its constitutional effects by its chemical products. 2. That these chemical products might probably be of the nature of albumoses associated with an organic acid or acids, or with an alkaloid or alkaloids, which might perhaps be produced indirectly by means of a ferment secreted by the bacillus. 3. It was probable that the production of these substances took place to some extent in the spleen, which was so often found enlarged in cases of influenza. 4. That these poisonous products acted upon nervous and other tissues, producing the great variety of functional and structural changes met with in the later stages of the influenza process.

Isolation was advised when possible. But even where isolation was impossible, much good might be done by destruction of the sputum and of the nasal secretion by disinfectants, and precautions as to the discharges, if once efficiently taken, would tell materially upon the epidemics. It might be asked what was the best disinfectant for destroying the bacilli. Fire and water were no doubt efficient, but, considering the very sensitive nature of the bacilli, no doubt any of the antiseptics ordinarily in use would suffice. If we could thus deal with the bacilli discharged from the body, the question next arose whether we might not deal with them within the bronchial tubes. Inhalations of many antiseptics had been recommended for this purpose; eucalyptus and menthol had been, perhaps, among the most popular. For his own part he had decided to try, whenever he had the opportunity, the injection into the trachea of such substances as had proved serviceable in other diseases of the respiratory tract.

The Address in Surgery was delivered by Professor J. GREIG-SMITH, of Bristol. The speaker stated that he should leave the science of surgery alone, and speak of the art; instead of the making of surgery he should speak of the making of the surgeon. The surgeon was, first and foremost, a physician, a man trained in the laws of health and disease, in the ways of preserving health and of curing disease. He was a man who could carry the treatment of a class—a small class—of diseases further than the physician, and that was all. The physician, on his side, went beyond the surgeon. But both met. The foundation of their art was knowledge of the material to be worked upon, the human body. Anatomy to its uttermost details, naked-eye and minute, normal and abnormal, was the foundation of all good surgery. In the persistent and overwhelming claims of its science, there was real danger that surgery might lose something of its art. There was no real teaching of the art of surgery in the country. Here and there a few favored house surgeons were permitted to pick up what knowledge they could by looking on and by helping; but of

personal guidance in the actual work on the living subject, analogous to the guidance given in other arts, surgery knew nothing. They had to teach themselves by experience alone. They had reached a high degree of excellence, but they might reach a higher, and one way to this was by personal tuition in the art.

The Address in Public Medicine was given by Sir CHARLES ALEXANDER CAMERON.

The following Americans were registered as guests of the association: From New York, Dr. Herman Knapp, Dr. W. P. Northrup, Dr. George T. Stevens, Dr. H. M. Biggs, Dr. Henry D. Chapin; from Philadelphia, Dr. W. E. Ashton, Dr. George M. Gould, Dr. S. D. Riseley, Dr. P. J. Sartain, Dr. de Schweinitz; from Columbus, Ohio, Dr. C. F. Clark; from Cincinnati, Dr. W. Griffiths; from Newport, R. I., Dr. F. E. Harris; from Chicago, Dr. J. B. Herrick; from Nashville, Dr. G. C. Savage; from Boston, Dr. E. C. Stowell; from Indianapolis, Dr. J. L. Thompson; from Montreal, Dr. Blackader.

Book Notices.

Clinical Manual for the Study of Diseases of the Throat. By JAMES WALKER DOWNIE, M. B., Fellow and Examiner in Aural Surgery for the Fellowship of the Faculty of Physicians, etc. New York: Macmillan & Co., 1894. Pp. xi-268. [Price, \$2.50.]

THIS little volume is divided into two sections, in the first of which the method of making a systematic examination of the fauces, the pharynx, and the larynx is described, as well as the various manifestations of disease that may be met with in connection with these different structures; while in the second section the individual diseases are considered in detail, with comprehensive directions for their medical and surgical treatment. The author has intended his work to be essentially practical, and has, therefore, excluded from the text all discussion of mooted points and elaborate histories of patients.

In the chapter on diphtheria his reference to the diagnosis of the disease by the presence of the Klebs-Loeffler bacillus is not comprehensive enough, and he makes no mention of the pseudo-bacillus found in diphtheroid inflammations. Neither under prophylaxis nor under treatment does he refer to the use of antiseptic nasal douches. He refers to intubation as an unsatisfactory procedure, but in this conclusion the great majority of the profession will not agree with him. Although reference is made to Klebs's antidiphtherine, the author is unable to give any idea of its efficacy.

The concise and accurate descriptions of the various diseases given in this book will make it a popular text-book with both physicians and students.

A Treatise on the Medical Jurisprudence of Insanity. By EDWARD C. MANN, M. D., author of *A Manual of Psychological Medicine*. Albany, N. Y.: Matthew Bender, 1893. Pp. xxv-420.

THE impression produced by a hasty examination of this book is that the whole arrangement is disorderly, and a careful examination does not assist us in bringing order out of chaos. A more detailed investigation leads us to the opinion that the book is injudicious, misleading, and untrustworthy in many instances. For example, Chapter VI is entitled *Aid to the Lawyer in arriving at a Judgment as to Sanity or Insanity in Cases where Insanity is alleged as a Defense*. We question whether

the minute instructions of this chapter are such as a lawyer should carry out in his relations with his client. More than twenty-five pages are devoted to this subject, the tenor of which may be gathered from the following sentences selected at random: "After having gained our patient's confidence, and having drawn him into a pleasant conversation, we should first inquire about previous attacks, then into his hereditary history, then into any predisposing causes, such as intemperance, vocation, habits, etc., which may have operated in the production of insanity. Also as to injuries to the head or spine which may have occurred, sunstroke, etc. We should then systematically, but carefully and cautiously, examine into the vegetative and reproductive functions, and then carefully examine the nervous system for the existence of such lesions as paralysis, epilepsy, catalepsy, hysteria, and allied affections. We should next examine the different senses, beginning with the sight, and in this way we shall find out if our patient has good vision, if the retina is normal, etc." Minute instructions are given as to examining the hearing, smell, taste, touch, reflexes, and so on. We notice throughout a lack of literary and grammatical sense. In the quotation given above, note the sentence beginning with "Also as to injuries." Note, too, the sentence advising careful examination of the nervous system for such *lesions* as epilepsy, catalepsy, hysteria, and allied affections! What sort of a *lesion* is epilepsy or catalepsy or hysteria? How shall we discover such a lesion by careful examination of the nervous system?

A Manual of Practical Obstetrics. By EDWARD P. DAVIS, A. M., M. D., Professor of Obstetrics and Diseases of Infancy in the Philadelphia Polyclinic, etc. Second Edition, revised and enlarged. With One Hundred and Thirty-four Illustrations and Sixteen Full-page Plates, several of which are Colored. Philadelphia: P. Blakiston, Son, & Co., 1894. Pp. xii-9 to 351. [Price, \$2.50.]

THE commendation bestowed in these columns (July 9, 1892) on the first edition of this manual was evidently an anticipation of professional sentiment, for in less than two years a second edition is required. In the present volume the author has made a general revision, adding an account of symphysiotomy and its results, and elaborating the section relating to the practice of palpation and the diagnosis of foetal positions. The text has been further elucidated by the addition of several illustrations based upon original photographs. The clearness and conciseness of the text, and the excellent character of the illustrations, will undoubtedly serve to maintain the popularity of the volume.

Hospice de la Salpêtrière. Clinique des maladies du système nerveux de M. le Professeur CHARCOT. Leçons du professeur, mémoires, notes et observations parus pendant les années 1889-'90 et 1890-'91 et publiés sous la direction de GEORGES GUINON, chef de clinique. Avec la collaboration de MM. BLOCC, SOUQUES et J. B. CHARCOT, internes de clinique. Tome II. Paris: Félix Alcan, 1893. Pp. 482. [Prix, 12 fr.] [Publications du Progrès médical.]

THIS volume contains lectures by the late Professor Charcot on Jacksonian epilepsy, on hysterical vigilambulism, on retro-antegrade amnesia, on laryngeal coughs and bruits in hysterical persons, and on hysterical hemianæsthesia. Besides these, there are studies by M. Georges Guinon and Mlle. Sophie Woltke on the influence of sensitive and sensory excitations in the cataleptic and the somnambulistic phases of hypnotism, and on the influence of excitations of the sense organs on the hallucinations of the passionate phases of hysterical attacks. Dr. Blocq is the author of a chapter on the forms of somnambulism. M. Guinon is the author of a chapter on hysterical somnambulism, of one

on hysterical double personality, and of one on two cases of progressive myopathy of the Landouzy-Déjérine type. M. Guinon and M. Souques are the authors of a chapter on the association of tabes with diabetes mellitus, and of one on thoracic deformities in primary progressive myopathies. M. Blocq and M. Guinon report a case of conjugatè paralysis of the sixth pair, and Guinon and Raichline present a clinical study on the aura of epileptic attacks.

While most of these papers have been published in the French medical journals, their interest is such as to justify their collection into this volume.

Part I. *Essentials of Refraction and the Diseases of the Eye.*

By EDWARD JACKSON, M. D., A. M., Professor of Diseases of the Eye in the Philadelphia Polyclinic and College for Graduates in Medicine, etc. Part II. *Essentials of Diseases of the Nose and Throat.* By E. B. GLEASON, S. B., M. D., Surgeon in Charge of the Nose, Throat, and Ear Department of the Northern Dispensary of Philadelphia, etc. Second Edition, revised. One Hundred and Twenty-four Illustrations. Philadelphia: W. B. Saunders, 1894. Pp. xiv-290. [Price, \$1.] [Saunders's *Question Compend*s.]

THE subject-matter in this book is arranged in the form of questions and answers, and does not purport to cover either subject treated of with any degree of completeness. That there is a demand for works of this class is shown by the appearance of a second edition. Of its kind, this one is up to the standard.

BOOKS, ETC., RECEIVED.

The Reactions of Nucleo-albumin (erroneously styled Mucin) with the Commonly Employed Urinary Albumin Tests: the Difficulty of distinguishing these Reactions from those of Serum-albumin, Globulin, etc. Remarks on the Occurrences of a Normal, Constant Trace of Albumin in the Urine. By D. D. Stewart, M. D., Philadelphia. [Reprinted from the *Medical News*.]

Amputation of the Entire Upper Extremity (including the Scapula and the Clavicle), and of the Arm at the Shoulder Joint. With Especial Reference to Methods of controlling Hæmorrhage. With a Report of One Case of the Former Amputation and Four of the Latter. By W. W. Keen, M. D., Philadelphia. [Reprinted from the *American Journal of the Medical Sciences*.]

Obliteration of Congenital Pigmentations. By B. Merrill Ricketts, M. D., Cincinnati. [Reprinted from the *Journal of the American Medical Association*.]

Some Observations on an Epidemic of Typhus Fever. By L. D. Pierce Clark, M. D. [Reprinted from the *American Medico-surgical Bulletin*.]

The Modes of Action of Emetics. By W. O. Caldwell, M. D., Chicago. [Reprinted from the *American Medico-surgical Bulletin*.]

Cystic Degeneration of the Chorionic Villi. By Catherine M. Kennedy, M. D., and Charles F. J. Kennedy, M. D., Springfield. [Reprinted from the *University Medical Magazine*.]

Appendicitis Obliterans. By N. Senn, M. D., Chicago. [Reprinted from the *Journal of the American Medical Association*.]

One Hundred Cases in the Coroner's Court of Montreal, 1893. By Wyatt Johnston, M. D. [Reprinted from the *Montreal Medical Journal*.]

Statistics of the Coroner's Court for the District of Montreal, 1893. By Wyatt Johnston, M. D., and George Ville-neuve, M. D. [Reprinted from the *Montreal Medical Journal*.]

Alumni Oration delivered before the Alumni Association of the Medico-chirurgical College of Philadelphia, by the Hon.

Charles Emory Smith, Philadelphia. [Reprinted from the *Medical Bulletin*.]

Traumatic Periostitis. By B. M. Ricketts, M. D. (Read at the Annual Meeting of the Ohio State Association of Railway Surgeons, Cincinnati.)

Report of a Case of Carcinoma of the Ileum. Intestinal Obstruction relieved by Anastomosis with a Murphy Button. By B. Merrill Ricketts, M. D.

De la Filariosis. Exposición del Primer Caso Esporadico Observado en Europa. Por el Dr. M. Font y Torne. [Publicado en la *Revista de Ciencias Médicas* de Barcelona.]

Nineteenth Annual Report of the Secretary of the State Board of Health of the State of Michigan for the Year ending June 30, 1894.

The Seventy-first Annual Report of the Board of Managers of the New York Female Asylum for Lying-in Women.

Twenty-second Annual Report of the New York Infant Asylum, presented at the Annual Meeting, January 16, 1894.

Medical and Surgical Reports of the Boston City Hospital. Fifth Series.

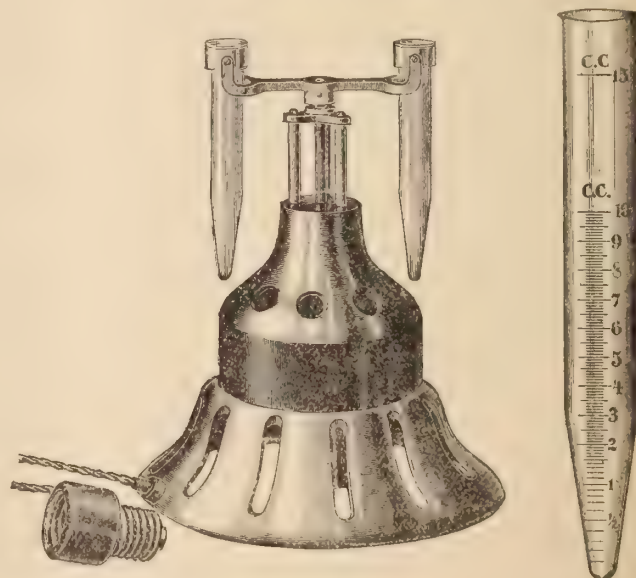
Additional Investigations concerning Infectious Swine Diseases. By Theobald Smith, M. D., and Veranus A. Moore, M. D. United States Department of Agriculture. Bureau of Animal Industry. [Bulletin No. 6.]

New Inbentions, etc.

THE PURDY ELECTRIC CENTRIFUGE.

THIS apparatus was devised by Dr. C. W. Purdy, of Chicago, for the centrifugal analysis of urine and the rapid and complete separation of sediments from fluids for microscopic purposes by means of centrifugal force.

By reason of its special design and construction, the field and armature being laminated and specially wound, it can be operated by electric currents of a hundred and ten volts direct or fifty-two volts alternating. It is, therefore, the only motor now manufac-



tured which will run by either direct or alternating currents without overheating. Attachment plugs and resisters are furnished for operating this centrifuge by any of the existing systems of electro-incandescent lighting at all desirable rates of speed for

practical work. It can also be operated by the ordinary galvanic and storage currents.

It is capable of a maximum speed, *without tubes*, of over 6,000 revolutions a minute; *with sediment tubes*, by means of multiple resisters on the hundred-and-ten-volt current, 2,500 to 3,500 revolutions; with tubes carrying *one ounce of urine*, 1,500 to 2,500 revolutions a minute. The precipitating centrifugal force exerted by this centrifuge is over two thousand times greater than that of gravity, and therefore a given sediment requiring twenty-four hours to precipitate by gravity may be obtained by this apparatus in rather less time than two minutes.

As a rule a speed of from 1,000 to 1,500 revolutions a minute is sufficient for all practical purposes with very few exceptions. In throwing down sediments for microscopic examinations the higher grades of speed may be used of 1,500 to 2,000 revolutions, though still higher speed may be employed if specially desired. Dr. Purdy finds the best results are obtained with sediments for the microscope by a speed of 1,200 to 1,500 revolutions continued until entire precipitation results. In other words, *medium speed and proportional increase of time give the best results*. Exceptions to this rule are chiefly in bacterial search, where very high speed is required. In quantitative centrifugal analysis of the urine for chlorides, phosphates, sulphates, etc., by Dr. Purdy's method *employ a uniform speed of 1,000 revolutions for three minutes, then read off the bulk percentage amount on the scale of the percentage tubes*. In determining the percentage of albumin, pus, etc., if necessary continue longer than three minutes. The rule in such cases is—*continue revolutions until the sediment be all precipitated, leaving the fluid above clear and free from sediment regardless of time*.

The standard percentage tubes for this centrifuge are made of heavy and carefully tempered glass, and they are so constructed that they may be used with or without the aluminum shields. If it be desired to use the percentage tubes at a higher rate of speed than 1,200 revolutions a minute, it is best to place them within the shields. At 1,000 revolutions a minute—which is the rate upon which most percentage methods are based—the percentage tubes are perfectly safe uncovered, and under such conditions they possess the advantage of enabling the operator to see when the sediment is all packed while the centrifuge is in motion. This is particularly important in determining percentages of such elements as pus, albumin, blood, etc.*

The apparatus is made by The Wood Electric Manufacturing Co., 18 and 30 West Randolph Street, Chicago.

Miscellany.

Chaucer's "Doctour of Phisyk."—The assistant editor of the *Bristol Medico-chirurgical Journal*, Mr. L. M. Griffiths, contributes to the June number of that journal an article in which he says:

"The doctor is thus introduced in the Prologue (ll. 411-44):

* With the old form of bulb-tipped sediment tubes, when the centrifuge came to a stop, currents were caused thereby in the bulb which often dislodged the sediment so that the latter became diffused through the fluid above. The sediment tubes for this centrifuge by means of their conical tips not only concentrates but holds the sediment firmly in the tip, so that the fluid may even be decanted and the sediment will not be dislodged.

"With us there was a Doctour of Phisyk,
In all this world ne was ther noon him lyk
To speke of phisik and of surgerye;
For he was grounded in astronomye.
He kepte his pacient a ful greet del
In houres, by his magik naturel.
Wel coude be fortunen the ascendent
Of his images for his pacient.
He knew the cause of everich maladye,
Were it of hoot or cold, or moiste or drye,
And where engendred, and of what humour;
He was a verrey parfit practisour.
The cause y-knowe, and of his harm the rote,
Anon he yaf the seke man his bote.
Ful redy hadde he his apothecaries,
To send him drogges, and his letuaries,
For ech of hem made other for to winne;
Hir frendschipe was nat newe to biginne.
Wel knew he the olde Esculapius,
And Deiscorides, and eek Rufus:
Old Ypocras, Haly, and Galien;
Serapion, Rasis, and Avicen;
Averrois, Damascien, and Constantyn;
Bernard, and Gatesden, and Gilbertyn.
Of his diete mesurable was he,
For it was of no superfluitee,
But of greet norissing and digestible.
His studie was but litel on the Bible,
In sangwin and in pers he clad was al
Lyned with taffata and with sendal;
And yet he was but esy of dispence;
He kepte that he wan in pestilence.
For gold in phisik is a cordial,
Therfor he lovede gold in special.'

"From Chaucer's description of the medical pilgrim much may be learned, not only of the individual characteristics of this doctor, but of the contemporary state of medicine and its literature. Many of us might envy this practitioner's power of diagnosis and his ætiological skill. Such a combination would go far to make 'a verrey parfit practisour,' as the advertising Australian doctor believed it did in his case, when he announced that his diagnosis was not only intuitive but instantaneous. The simplicity of the humoral pathology enabled the 'Doctour of Phisyk' to define the cause of every malady with great precision."

"But in the matter of dress the doctor at the end of the nineteenth century, with his black morning or frock coat and dull ungraceful trousers, although he may have gained in comfort, is, so far as appearance goes, at a manifest disadvantage, not only with his fourteenth-century ancestor, but with the doctor of later times, as may be seen from Allan Ramsay's portrait of Mead now in the National Portrait Gallery, or that of Astley Cooper by Sir Thomas Lawrence. Chaucer's doctor was arrayed 'in cloth of a blood-red colour and of a blueish-grey.' Todd says (*Illustrations of the Lives and Writings of Gower and Chaucer*, 1810, p. 254), 'in the Manuscript his surcoat is of bright purple and his hood . . . of blue, deeply furred with white,' and refers to a passage in *Piers the Plowman* (Passus vi), written shortly before the *Canterbury Tales*, alluding to the benefits arising from an abstemious diet, and which contains a mention of the dress of a physician, and is also a good instance of the frequent satire directed against doctors, who are said to shorten rather than lengthen their patients' lives.

"And if thow diete thee thus,
I dar legge myne eris
That Phisik shal hise furred hodes

For his fode selle,
 And his cloke of Calabre,
 With alle the knappes of golde,
 And be fayne, by my feith!
 His phisik to lete,
 And lerne to laboure with lond,
 For liflode is swete.
 For murthereris are manye leches,
 Lord hem amende!
 They do men deye thorough hir drynkes,
 Er destyne it wolde.'

—Ed. WRIGHT, 1856, vol. i, p. 133.

"Pers" in Chaucer's description is the obsolete French word for bluish gray. Taffata and sendal, which formed the linings of the doctor's garments, were varieties of expensive silk; but, though he allowed himself, probably for professional reasons, this extravagance of costume, he was exceedingly careful about his expenditure in other matters: 'he was but esy of dispenche.' The 'cloke of Calabre' in Langland is one made of a kind of fur, which is supposed, without any authority, to have derived its name from Calabria. The term, which is of frequent use in old literature, is now applied to the fur of the Siberian squirrel. Whitaker, in his edition of *Piers* (p. 143), paraphrases the expression into 'cloak of Salerno,' perhaps thinking that as Calabria is in Italy the reference was to the School of Salerno.

The doctor is represented carrying a 'urinal,' and inspecting the secretion which it contains. Urinal was the name applied to the receptacle in which the urine was placed when the physician pretended, by a mere inspection, to diagnose the complaint from which a patient was suffering. The special marks which showed that Valentine was in love were so obvious that Speed said to him: they 'shine through you like the water in an urinal, that not an eye that sees you but is a physician to comment on your malady' (*Two Gentlemen of Verona*, ii, 1, 40-3). This piece of humbug was raised to the position of a fine art, for those who practiced it would first show their ingenuity by learning indirectly what were the symptoms of the malady of the patient, and then achieve a reputation by declaring that the urine showed that the sick person had such symptoms. Not even the denunciations of Linacre, or a statute of the College of Physicians which declared that no one connected with that institution should upon such evidence prescribe for a patient whom he had not seen, could put an end to the practice which existed from at least 1230 through several centuries. Shakespeare has several references to it; on these some comments were made in the *Journal* for December, 1887.

"The way in which doctor and apothecary played into one another's hands does not need much comment. It survived long after Chaucer's time. A good illustration of it may be seen in Bullein's *Dialogue against the Fever Pestilence* (1578), from which an extract was given in the *Journal* for December, 1892. Since those days we have grown so good that of course no instance of the practice exists now.

"The employment of astrology ('astronomye') in the treatment of the sick came into western practice through the Arabians, and reached us, with many other evil things, by way of Italy. Many events of life, including the administration of remedies in illness, had, according to the astrologers, to be undertaken, if the result was to be successful, at an opportune moment, which was determined by consideration of the so-called planetary influences current at the time with those which ruled at the birth of the person concerned. No doubt the special love of gold with which Chaucer's doctor was possessed would account for the delay which occurred before he could 'fortunen the ascendent' for his patient, or in other words, declare that the lucky moment had arrived when there was a favorable in-

fluence of the ascending stars and planets. The 'images' were the astrological designs by which the doctor represented the favorable aspect of the heavens. A drawing of one such image is given in *Good Words* for this month in an article by Sir Robert Ball on Kepler, who is a conspicuous example of a man with a scientific mind tainted with the absurdities of astrology. It might have been thought that such superstition had been outgrown now by all except the buyers of cheap almanacs, in which the pretension is made of foretelling future events; but we are told that astrologers are doing a good trade in England at the present day, and that the house of one of them 'is visited by many leading people in society, while more than one of our commercial magnates and Stock Exchange speculators seek his advice' (*Review of Reviews*, March, 1893, p. 287). Only within the last few weeks I received the prospectus of a half-guinea book, which treats of natal astrology, and which contains chapters on The Health of the Native and Diseases caused by the Planets. One of the authors of the book offers to supply 'directions' for periods from one to fifty years, at prices ranging from three shillings to five pounds. Those who assert that the world is still in its childhood verily have some justification for the statement.

"In the last line but one of the description" is probably a reference to the 'gold cure' of the middle ages. There was a widespread belief that gold taken internally would preserve youth and health, and heal all diseases. The writers of the time have many words about 'aurum potabile' and its supposed virtue. Shakespeare has one or two references to it (2 *Henry IV*, iv, 4, 161-3; *All's Well that Ends Well*, v, 3, 101-4).

"Chaucer's doctor was careful of his bodily welfare, and wisely enjoined for himself a very rigid and spare diet; but he seems to have been somewhat regardless of his spiritual growth.

"The reading which had helped the doctor to become such an excellent practitioner was extensive, and derived from most of the nations which had contributed to the literature of medicine. He would not have had much difficulty in acquiring what there was to know of the old Æsculapius, for no literature is attributed to his name, and of his doings nothing is recorded except in a few notices in Greek poetry. Although some writers believe him to have been an actual personage, he is usually regarded as the mythical son of Apollo and Coronis. His sons Machaon and Podalirius are well known, the former especially, as attending to the wounds of the combatants before Troy. Their services were highly valued. In the words of the version by one resident in Bristol:

"For more than a multitude availeth the leech for our need
 When the shaft sticketh deep in the flesh, when the healing salve
 must be spread."

—*The Iliad of Homer done into English Verse*. By ARTHUR S. WAY,
 1877, xi, 514, 515.

The deeds attributed to Æsculapius caused his name to be highly honored. After-generations deified him and built temples in his honor. At these many wonderful cures were, of course, performed, and those who received benefit left behind them a description of their diseases, to which the priests of the temple added an account of the remedies employed. Those who practiced the healing art took their methods from these records, represented themselves to be his descendants, and for some time were known as Asclepiadæ.

"For some centuries medicine was largely in the hands of the philosophers, and it was not until 400 B. C. that Hippocrates became almost its first systematic practitioner. His writings were considerable and, characterized by wide powers of observation and a good style, had an enormous influence upon medical science. Several complete Greek and Latin editions of the

works attributed to him were published in the sixteenth century, and these have been often reprinted." . . .

"Dioscorides was a physician of Asia Minor about the time of Nero (54-67 A. D.). He paid special attention to *materia medica*, on which he wrote a treatise. This and his other works dealing principally with therapeutics were printed in Greek and Latin in the fifteenth century and afterward. His editors, who have been numerous, have by their comments added much to his original writings. In the Bristol Medical Library there is a 1598 Latin copy of all his known works. The mediæval doctor, always an ardent therapist, was largely indebted to Dioscorides, who obtained an allegiance in the department of *materia medica* as great and lasting as did Galen in the sphere of general practice.

"Toward the end of the first century of the Christian era, Rufus of Ephesus was distinguished more as an anatomist than a doctor. His work was highly spoken of by other writers, but as only fragments of it are extant, it is not likely that Chaucer's doctor derived much assistance from it.

"In the second century there was born at Pergamum, in Asia Minor, one who was destined to have a larger influence on matters medical than any other writer before him except Hippocrates, and the magic of whose name lasted like a spell over the healing art for centuries. Even in the reign of Elizabeth it was thought rank heresy to impugn his authority. (See *The Roll of the Royal College of Physicians of London*, second edition, 1878, vol. i, p. 62.) Galenical or vegetable pharmacy was regarded almost as a sacred thing, and received no serious addition or opposition till Paracelsus, at the beginning of the sixteenth century, ventured to introduce mineral substances and chemical combinations into the *materia medica*. Galen was a voluminous author, and numerous large editions of his works and commentaries on them are in existence." . . .

"In the literature of the Doctor of Physic there is now a great chronological gap. In the year 792 begun the reign of the Caliph Haroun Al Raschid, who, following in the steps of his predecessors in encouraging the progress of literature, commissioned Mesue, who, there is reason, from the title of one book, to believe was also known by the name of John Damascene, to translate Greek scientific works into his own language. He could not, however, have done much for the medical pilgrim to Canterbury; for, although his own works are quoted by later writers, there is, except the one book to which I have referred, nothing that can with certainty be attributed to him.

"There is much doubt as to the Serapion with whose writings Chaucer's doctor was acquainted. There was a Serapion of Alexandria whom Celsus mentions. The earlier of the two Arabian physicians of the same name lived at the beginning of the ninth century and was principally a compiler. His work found two Latin translators. The later Serapion, who died about 1070, left a work on *materia medica*, of which Latin editions were printed in the fifteenth and sixteenth centuries.

"Rhazes, who was born in 852, was one of the most celebrated of the Arabian physicians. He had wide scientific knowledge, and a power, exceeding that of his predecessors, of presenting an orderly arrangement of ascertained facts, which he accumulated in many works, accompanied by the record of his own observation of cases. He is now mainly known by his treatise on small-pox, which, after going through several Latin and French editions from the end of the fifteenth century onward, was translated into English by Mead in 1747. It was also issued by the Old Sydenham Society, translated from the original Arabic by Dr. Greenhill." . . .

"Haly, known better as Haly Abbas, was one of the leaders of Arabian medicine, and on account of his great learning was surnamed 'Magus.' In the latter half of the tenth century he

wrote a comprehensive work dealing with the whole subject of medicine. It was translated into Latin in 1127, and was printed first in 1492 and again more than once in the sixteenth century.

"Avicenna, whose name is more familiar perhaps than that of any other Arabian doctor, was born in 980. In early life he achieved a great reputation for proficiency in literature and mathematics, but seems to have wasted his great abilities by frivolities of life, and in almost entirely compiling from previous writers. Yet his works, especially his *Canon Medicinæ*, had a great influence upon his successors, and were authorities in medicine till quite the middle of the seventeenth century. They were first printed in Arabic, and afterward in Latin.

"Having given so much attention to medicine as expounded by the Arabs, it was to be expected that the Chaucerian doctor would bestow some study on the writings of the man who did most to introduce Arabian medical thought and practice into Europe. Constantinus, surnamed Africanus from the fact that he was born in Carthage, who had spent much of his life in the East, became in the latter half of the eleventh century identified with the School of Salernum, which was just then rising into prominence as a center of medical teaching of university character. It exercised a long influence over medical life in general, and lived till 1811. In its corporate capacity it issued several works, the principal of which were a cyclopædia of medicine and surgery and the well-known *Schola Salernitana*, a dissertation on the preservation of health issued as a poem in Latin verse, and which enjoyed a popularity for centuries. It was first printed in 1474. Salernum is also celebrated for having produced several women doctors. Chaucer refers again to Constantine in *The Merchant's Tale*, where an old man is represented as having taken freely of aphrodisiacs:

"And many a letuary had he ful fyn,
Such as the cursed monk daun Constantin
Hath written in his book *de Coitu*."

Constantine's complete works were printed in Latin in 1536.

"The doctor in the *Canterbury Tales* had a great fancy for Arabian literature. Averrhoes, who added little to the store of medical knowledge, was a man of great intellectual attainments; he was more a theoretical than a practical physician. He lived in the second half of the twelfth century. Some of his medical works were translated into Latin and afterward printed; but he is principally famous for his philosophic treatises.

"Montpellier became almost as famous as Salernum as a school of medicine; and in the person of Bernard de Gordon supplied an authority for Chaucer's companion. Bernard was teaching there from 1285 to 1307. His most famous book was *Lilium Medicinæ*. His collected works were first printed in 1487.

"Gilbertus Anglicus, whose date is not exactly known, but which was about the end of the thirteenth or beginning of the fourteenth century, was the first English author whose works have survived till the present day. Among them is a *Compendium of Medicine*, which was first printed in Latin in 1510. He is said to have derived his inspiration mainly from the Salernian school.

"About 1280 was born a physician who Dr. Norman Moore (*Dict. Nat. Biog.*) thinks may have been the man whom Chaucer had in his mind's eye when he described his Canterbury pilgrim, who the Host considered was 'a propre man and y-lik a prelat.' He became known as John of Gaddesden, and went to Merton College, Oxford. As Chaucer was page in the household of Lionel, son of Edward III, and as Gaddesden attended some part of the royal family, it is probable that they saw one another. About 1307 Gaddesden wrote his famous book, *Rosa*

Medicine, of which there still exist many MSS. It was printed in 1492, and more than once in the fifteenth century. He died in 1361, having held a prebendal stall in St. Paul's. At that time Chaucer was probably about twenty-one. Dr. Freind's account of Gaddesden (*Hist. Physic*, ii, 277-91) shows that he was a very shrewd practitioner, but not one of whom we can be at all proud."

Muscular Asthenopia and its Treatment by Graduated Tenotomy.—We have been favored with advance sheets of the forthcoming volume of the *Transactions of the Medical Society of the State of Pennsylvania*. Among the papers read was one on this subject, by Dr. Charles Hermon Thomas, of Philadelphia, of which we here give the substance:

"During the past decade a great advance has taken place in our knowledge of the anomalies of the ocular muscles. Until well within that time, the standard text-books on ophthalmology, so far as I am aware, recognized the so-called insufficiency of the internal recti only, as the cause of muscular asthenopia; affections of the remaining muscles being treated solely in their relations to diplopia and strabismus. It is now almost universally conceded that the opposing and vertical muscles are subject to like defects, with corresponding symptoms of equal or even greater importance. Recent editions of systematic treatises show that most writers now give to the whole range of muscular anomalies the prominence which their importance demands. Among these may be mentioned the latest edition of the work of Noyes, which treats the subject elaborately, and also the works of de Schweinitz and of Norris and Oliver, both of which latter deal with it at considerable length. The increased interest and scope which the subject has acquired has resulted in the very general adoption of a new and systematic nomenclature—that originally proposed by Stevens. This improved terminology is employed by the authorities just named and is also introduced in the recent American editions of the works of Fuchs and Juler. As showing the increased importance accorded to the subject, it is worthy to be mentioned that at the meeting of the Pan-American Medical Congress, held in Washington within the past year, one day out of four was allotted by the Ophthalmic Section to the discussion of disorders of the ocular muscles.

"The form of asthenopia under consideration results from disturbance in the normal use of the eyes as a pair—in effect acting as one single and not two separate organs—*œil cyclopien*. The uncontrollable impulse to secure binocular vision throws upon the extrinsic muscles of the eye a constant and delicate service during the continuous effort to maintain accurate adjustment in the fixation of objects viewed. Interference with the movements of the eyes by disturbance of the normal relations of their muscular components calls for an excessive expenditure of nervo-muscular energy to secure compensation and maintain the eyes in the proper position to secure single binocular vision. Exophoria—divergence defect—may demand the utmost exercise of the power of convergence, constantly applied; esophoria—convergence defect—on the contrary, that of an excess of abduction, involving the development of an unusual and abnormal innervation and muscular action. Such efforts may prove exhausting, and are frequently the cause of disturbances which manifest themselves in a series of symptoms more or less marked and important.

"The symptoms most frequently observed are a sense of fatigue in the eyes, more or less constant and usually aggravated by definite use; objects viewed become indistinct and sometimes double, with occasional transient strabismus; headache; photophobia; dizziness; great discomfort while looking at moving objects, and when the patient is himself in rapid motion, as in

looking out of a moving railway train; pain in using the eyes for definite fixation, which pain is frequently referred not to the eyes alone, but to the frontal, temporal, or occipital region, rarely to the vertex. Indeed, a large proportion of cases of headache, whatever the special variety, are symptomatic of eye-strain due to ocular defects, and many of them to disturbances of the ocular muscles. Headache may supervene at once upon use of the eyes, or it may be delayed.

"The following conditions, alone or variously combined, are frequently present: Pain in the back; drowsiness in some, insomnia in others; a variety of reflex neuroses; mild blepharospasm, involving a few fibers only of the orbicularis; twitching of the eyelids; palpitation of the heart; night terrors; nausea; indigestion; constipation, and a host of other symptoms.

"These symptoms, and such as these, however, it will be seen, are often associated with accommodative asthenopia as well; excepting only the transient diplopia or strabismus mentioned, and which is of infrequent occurrence.

"On the whole, it may be said that the subjective symptoms of asthenopia as elicited in the consulting room show almost no distinctive characteristics pointing to their especial origin, whether refractive or muscular; the same headaches and the same sense of eye-strain are complained of under both conditions. The test which has been given as differentiating the two disorders—namely, the use of one eye, the other being excluded from the act of vision for a time by covering it—has, in my experience, usually proved inefficacious.

"Practically, then, though the subjective symptoms alone are often inadequate to show the existence of muscular defect, objective investigation usually yields definite and uniform results, often, indeed, showing an exactness scarcely inferior to those obtainable in refractive determinations. Sometimes, but very rarely, the conditions found are inconstant or even erratic, and then great care is required in the estimation of their value.

"As regards objective tests, the so-called cover test is the most readily applicable and is deserving of much confidence; it should not be omitted in any case. The diplopia tests, such as vertical prisms, Maddox's rod, etc., and the determination of abduction, adduction, and sursumduction are indispensable in reaching a reliable conclusion.

"It should be a fixed rule of practice to eliminate, first, the refractive and accommodative elements in any case under examination by the proper glasses, leaving the muscular conditions to be dealt with at the last. Under these circumstances it will be found occasionally, though not as frequently as could be wished, that the muscular anomalies vanish after correction of errors of refraction and accommodation; the final test as to which of these may be the active disturbing agent in any particular case must frequently be the therapeutic test."

After giving notes of several cases Dr. Thomas continued as follows:

"Considerable discussion has taken place as to the relative frequency of esophoria and exophoria, and different writers have asserted a marked preponderance on either side. A review of my cases for the last nine years shows that in the operative cases, as between esophoria and exophoria, these are almost exactly equally divided; and while there has been a certain variation on one side or the other from year to year, a close parallelism has been maintained in the main throughout the whole period. This examination also shows, as regards the refraction in both these forms of heterophoria, that hypermetropia predominated. The predominance of hypermetropia was more marked in the cases of esophoria than in those of exophoria, as the following figures show:

"In esophoria the relative frequency of H. over M. was in the proportion of $3\frac{1}{2}$ to 1; in exophoria the relation of H. to M.

was as $2\frac{1}{2}$ to 1. Thus, while the most of the cases of heterophoria show hyperopic refraction—as is to be expected considering the greater frequency of this condition over myopia—when the static refraction is viewed in its relation to the accompanying heterophoria, we find that hypermetropia is usually accompanied by esophoria and myopia is most frequently associated with exophoria.

"There is still to be found occasionally one who maintains the opinion that a complete tenotomy is required in every case of heterophoria calling for operation, on the assumption that no gain whatever is to be derived from partial severance of the tendon. My experience leads me to a directly opposite conclusion."

The author then referred to his first paper on this subject, written six years before, in which he had stated in effect that the fan-shaped expansions of the tendons of the recti at their insertion into the sclerotic were wider and thinner and their margins more elastic than was generally appreciated, and that the elasticity of the margins was an influential factor in the production of a relaxation of tension in the tendon, graduated and definite in amount and permanent in character, permitting the effectual central portions of the tendon to retract and form a new attachment to the globe farther back. This he desired now especially to reaffirm and to add that graduated tenotomy was practicable and effective only because of the elasticity of the margins of the tendons. No attempt was made by him to distinguish between the tendon and its immediate covering derived from Tenon's capsule, for, distinct as they were anatomically, they were one surgically, for the purposes of this operation at least, and were to be treated as one.

"It is true," he continued, "that occasionally a case is found in which no appreciable change in position occurs until complete severance has been accomplished, but such cases are altogether rare and exceptional. *In the great majority of cases a gain graduated from one to eight degrees may be made without complete severance.* In those exceptional cases referred to, the tendon is thick and narrow at its insertion, and the elastic margins are either deficient or absent.

"The technique of graduated tenotomy involves considerable difficulty and complication at times, and the performance of the operation is not to be looked upon as in any sense a trivial procedure. It is an altogether more delicate and difficult operation than that for strabismus; and not less so indeed than any other operation done upon the eyeball, not excepting that for cataract; but, when skillfully performed, it may be expected to yield definite and satisfactory results. It can not be successfully undertaken without special instruments. Those devised by Dr. Stevens leave little to be desired. The ordinary strabismus instruments are altogether unsuitable by reason of their coarseness and clumsiness, and should never be employed.

"A study of nearly ten years faithfully pursued in all cases of asthenopia coming under my care has led me to the following conclusions:

"Muscular asthenopia may present symptoms of all grades of importance, from the slightest to the most serious.

"The muscular conditions in every case should, as a matter of routine, be as carefully investigated as are the media, eye-ground, refraction, and amplitude of accommodation.

"As in refractive, so in muscular asthenopia, the gravity of the symptoms bears no constant relation to the amount of the physical defect. It is impossible to predict with any considerable degree of definiteness the result of correction of either refractive or muscular error. As much and very much the same kind of relief is to be expected from the correction of the muscular anomalies as from the correction of errors of refraction and accommodation, as might be expected from the

similarity in the symptoms which these conditions respectively cause.

"During the earlier years of my study of these cases, I gave considerable attention to the graver neuroses—especially epilepsy—in connection with muscular anomalies; continuing the observation of a series of epileptic cases throughout a period of about five years. The results obtained in this series were altogether negative, not one recovering. With expectations of cure of epilepsy greatly abated, I nevertheless consider it proper to remove eye-strain of muscular origin in this affection as I would in any other condition; and for the additional sufficient reason that sound conservatism in the management of epilepsy calls for the removal of all possible sources of peripheral irritation."

A Lunatic's Relatives.—The *Hospital* for July 28th publishes an article of which the following is the substance: Among the troubles and anxieties of an asylum doctor's life the friends of his patients may certainly be reckoned. They are of all varieties, but a considerable number are more than kin, in that they also are not wholly free from the taint of madness, and often decidedly less than kind. A husband, who brought his wife to the Morningside Asylum, Edinburgh, was obliging enough to give a hint as to the proper mode of treating the patient. He had been in the habit of thrashing her twice a week, and thought the discipline should be continued. The supersensitive relatives—the opposite of this kind husband—are, however, almost as great a nuisance. They come to the asylum weeping and trembling, bewailing to the lunatic himself his sad condition, until they upset his composure, and cause no little extra trouble to the attendants, who are sufficiently hard worked already. Still, even these are less undesirable visitants than the drunken father who, as we are informed by Dr. Elkins, of the Edinburgh Asylum, finding his insane daughter uninterested in his conversation promptly gave her a black eye. One would be inclined to say, in the face of such instances, that a lunatic was better without visitors; but this is not so. Very few patients completely lose their own identity; a considerable number know not only who they are, but where they are, and the knowledge is a grief and a humiliation to them. These feelings are aggravated by the notion that those who once loved them, who were once their companions, have deserted them. And often enough they seem to be forgotten. Their kinsfolk bring them to the asylum, and then, glad to be rid of the incubus, never return to ask how they fare. Oftenest is this the case, sad to say, with husbands and wives; the tie of wedlock, close and permanent as it is, seems to snap at the asylum gates; and children are not too devoted to feeble-minded parents, while mothers and maiden aunts seem to be the most loyal to their insane relatives. Doubtless the visits of these devoted women are not an unmixed benefit; they are liable to unreasonable emotion, they put leading questions to the patients to make them complain, and accept their answers as undoubted truth. But, at their worst, they do less harm than those who make the asylum as complete a severance as the grave.

Ichthyol in Gynecology.—Dr. Malcolm Storer, of Boston, contributes an article on this subject to the *Boston Medical and Surgical Journal* in which he remarks that the question of the value of ichthyol in gynecology has been somewhat disputed. Its use in gynecology was first suggested by Freund in 1890 who observed very rapid and complete cures in many cases of chronic parametritis, chronic and subacute perimetritis, with exudation and adhesions, cicatricial atrophy of the vagina and cervix, chronic metritis, and tubo-oophoritis. He also found it valuable for pruritus and cracked nipples, and in a case of catarrh of the large intestine he had given relief with suppositories. He had observed an extraordinary resorbent action and

great analgesic power. Other investigators admit its analgesic qualities, but that it promotes absorption is as stoutly denied by some as it is maintained by others. Reitmann and Schönauer reported the most gratifying results with regard to pain in a hundred cases of inflammation. Bloch was the first to apply pure ichthyol to the endometrium, and was convinced of its resorbent as well as of its anodyne action. He noticed great improvement in cases of acute erythrit and chronic metritis with venous engorgement. That its effects were not due to the use of a glycerin solution he proved by a series of experiments with pure ichthyol, and stated his belief that the pure drug was more efficient than the glycerin solution. Köttschau employed ichthyol in fifty-six cases of endotrachelitis, also in a hundred and twenty-seven cases of endometritis, using also, in the severer cases, a preliminary curetting with the iron, massage, and douches. Although treatment with other means gives about the same proportion of cures, he regards that with ichthyol as much safer. In fifty-two cases of febrile perimetritis he employed tampons of ichthyol-glycerin with ichthyol pills and hot sitz baths, and was satisfied that this treatment produced a cure more promptly than any other, the pain being often relieved by the first application and the exudate quickly disappearing.

So far, all testimony has been favorable, the author says, but in 1891 Oberth drew the following conclusions from the study of forty-two cases: 1. The salve had absolutely no power to control pain. 2. Although the pills were usually well borne, no improvement in appetite or in general condition followed that could be ascribed to them. 3. The suppositories had a negative effect as regarded tenesmus, and they sometimes irritated the rectum. 4. Although pure ichthyol applied to the catarrhal mucosa or eroded os would often produce a cure, the results were by no means so good as those obtained by the older astringents. The only good derived from the use of the tampons, he believed, came from the glycerin they contained, and while granting a certain influence against pain, he denied absolutely any resorbent action. Other writers arrived at the same conclusions, maintaining that it should be used only symptomatically for pain, and that its intra-uterine use might be followed by severe hæmorrhage.

In a number of cases of moderately acute pelvic inflammation with much pain, but where an operation did not seem to be indicated, Dr. Storer has employed the following method: Every third day, after carefully drying the vagina, its vault was freely painted with ichthyol-glycerin, or with pure ichthyol, followed by a pad soaked in the solution, which in turn was guarded by a dry pad. In addition to this, full hot douches were sometimes employed. In perhaps a dozen cases pills were given. No discomfort from them was noticed, except in one or two cases of dyspepsia, when the patients complained of the taste of the eructations. On the other hand, the author can not say that any of the patients taking the pills seemed materially better. In nearly all the appetite improved, but this may have been due to the improvement in the general condition. In six cases of deep-seated pelvic pain the ointment was tried, and possibly the very slight but positive relief that was observed may have been due to massage. In this class of cases the author can only say that the patients seemed to improve faster than where other methods were employed. The relief to sharp pain was fairly constant and immediate, and in a few cases a single application gave almost entire relief. Dull, aching pain was not so easily reached, although it was the exception if relief was not experienced after a number of applications.

In cases of chronic endometritis seen at comparatively long intervals pure ichthyol was applied to the fundus after a preliminary partial disinfection with lysol or creolin, and the relief

from local pain and dragging was constant, and generally there was in a short time much less leucorrhœa. Of course, very many obstinate cases finally came to curetting, but the author's impression is that as many, if not more, were cured or relieved by this method than by any other treatment. He has used the salve and the pure drug in a number of cases of pruritus of the vulva and of the anus, and there was improvement, but no cure, in all. In a few cases of painful hæmorrhoids it seemed to relieve the discomfort by lessening the congestion. From what he has seen, Dr. Storer feels justified in drawing the following conclusions: 1. Although ichthyol is by no means the gynæcological panacea that some observers have held it to be, still it has sufficient approved value to deserve a very high place in our list of remedies. 2. While its chief action is to relieve pain, it does possess certain resorbent qualities, which in some cases are relatively powerful. 3. Its use is unattended with danger or discomfort. 4. The pure drug is generally more satisfactory and reliable than solutions. 5. It has not yet been proved that it has any gynæcological value other than as a local application.

Quackery within the Profession.—The *British Medical Journal* for July 28th contains an abstract of an address delivered at the annual meeting of the Midland Branch of the British Medical Association by Dr. J. West Walker, of London. The author referred to the characteristics of quackery in its barest and most uncompromising form, and asked whether or not it had gained an entrance within the profession. He criticised the tendency on the part of dealers to advertise proprietary preparations with an amount of elaboration which seemed to him quite uncalled for.

With regard to the attitude of consultants in the treatment of patients, the author paid a compliment to the diagnostic skill commonly shown, and admitted that assistance had often been obtained from them, but, he added, when he sent to a consultant, he invariably asked himself what novelty he should have to procure, although his surgery was well supplied with most of the established therapeutic agents. The newest mineral water, tabloid, capsule, or some drug not to be found in the Pharmacopœia, but only to be obtained from a particular chemist; these and others formed a tempting catalogue of choice novelties from which a selection might be made according to fancy.

The author made it a point of honor to carry out scrupulously the consultant's plan of treatment, but if the case was chronic, one by one his instructions were dropped, and the general management of the case fell back upon the original adviser, who had to bring into play all the skill and judgment he possessed to meet the various and varying symptoms as they arose, aided and supported by the line of right principle he had received from his professional brother. Furthermore, the patients usually returned loaded with minute instructions as to diet. Unfortunately, especially in the matter of diet, these instructions were by no means uniform. Different advisers gave different advice. The old adage that "what is one man's meat is another man's poison" seemed to be completely lost sight of, and any one whose inclination prompted him to do so could easily ride his hobby to death. Exact details as to the quantity and quality of the food, nice distinctions as to what drinks might be taken, explicit rules as to meals, exercise, and habits generally—these and similar instructions were laid down and enjoined with great exactitude, and if the patient could be induced to have faith in this dogmatism and obey it, and if he adhered strictly to the diet and regimen ordered for him, benefit to his health would generally follow. And, since the end was usually greater than the means, something might be said in favor of a

means which conduced to such a desirable end, even if it was somewhat irregular. Might it not be well, asked the writer, to ask and fully realize the answer to the question, How far were these good results the positive effects of what we caused our patient to do, and how far the negative effects of what we caused him not to do? The removal of some vicious habit, some worrying occupation, or unhealthy surroundings might really have been the cause of good, and our remedies only have contributed to bring about the result by an indirect method.

With regard to new remedies, Dr. Walker thought that a new drug which was really useful required little advertisement. He protested against the abuse, not the use, of advertisements; although condemning credulity, he would not favor its opposite—a dogged skepticism which, in an exact science, such as medicine, was perhaps even more harmful than credulity.

The author was highly averse to the practice of prescribing strong mixtures to be taken in doses of one or two drachms, or of so many minims. To prescribe concentrated mixtures of strychnine, of arsenic, or of mercuric perchloride, and direct them to be given in various degrees of dilution, was, he thought, a dangerous custom.

The American Association of Obstetricians and Gynaecologists.—The secretary asks us to make the following correction of the preliminary programme which we published in our issue for August 4th, also the subjoined additions: Under the heading of a discussion on Inflammatory Disease of the Uterus and Appendages and of the Pelvic Peritonæum, the subheading "Results—When treated under Various Methods of Treatment," should read *When not treated*. The additional headings are these: Remarks bearing on the Surgical Treatment of Intussusception in Infants, based on Two Successful Cases, by Dr. Henry Howitt, of Guelph, Ont.; The Limitations of Surgery in the Treatment of the Uterus and its Appendages, by Dr. William H. Myers, of Fort Wayne, Ind.; The Incision in Abdominal Surgery—Methods and Results, by Dr. J. H. Carstens, of Detroit; Abdominal Section in Ectopic Gestation where the Fœtus is Living and Viable, by Dr. X. O. Werder, of Pittsburgh; Hysterectomy for Cancer of the Uterus, by Dr. E. W. Cushing, of Boston; Chronic Progressive Atrophy of the Vulva (Kraurosis Vulvæ), its Pathology and Radical Treatment, with Report of Cases, by Dr. Charles A. L. Reed, of Cincinnati; and a paper (subject to be announced) by Dr. William E. B. Davis, of Birmingham, Ala.

The Late Professor Josef Hyrtl.—The *Wiener klinische Wochenschrift* informs us that Professor Hyrtl's death was an easy one—he was found dead in bed on the morning of July 17th, in the eighty-fourth year of his age. He was a prolific contributor to medical literature, as the following list of his published works, taken from the same journal, will show:

Beitrag zur vergleichenden Angeiologie; Gesuch um Unterstützung seiner anatomischen Untersuchungen; Neuer Muskel des Gehörorgans bei *Phoca vitulina*; Gehörorgane seltener Säugethiere aus der Ordnung der Marsupialien; Ueber die Carotiden des Ai (*Bradipus torquatus*); Ueber die Wirbel und Lymphherzen des Scheltopusik (*Pseudopus Pallasi*); Commissionsbericht wegen Unterstützung der Arbeiten des Dr. Weiss über den Eisengehalt des thierischen Organismus; Notiz zu Kollar's Mittheilung über das ungewöhnliche Auftreten gewisser Insectenlarven im lebenden thierischen und menschlichen Körper; Ueber seine bei den Octoberereignissen erlittenen Verluste an Präparaten, Zeichnungen und Manuscripten; Das uropoetische System der Knochenfische; Ueber einige interessante Abweichungen der unteren Wirbelbogen der Fische; Antrag zu Schritten, um die Mitwirkung der k. k. Marine und

der Consulate zur Einsendung zoologischer und zootomischer Gegenstände herbeizuführen; Ueber Wedl's Beiträge zur Lehre von den Hämotozoen; Ueber die Uebergänge der doppelten Ovarien in die einfachen bei den Fischen; Ueber Gerlach's Beiträge zur Structurlehre der Leber; Ueber einige interessante und bisher noch nicht beschriebene Eigenthümlichkeiten der Schwimmblase bei der Gattung *Caranx*; Ueber die Structur des Eierstockes von *Ophidium barbatum* und des Peritonæalcanals von *Mormyrus oxyrrhynchus*; Ueber das angebliche Fehlen der Harnblase bei einigen Fischgattungen; Beiträge zur Morphologie der Urogenitalorgane der Fische; Ueber das Ossiculum canalis nasolacrimalis; Das uropoetische System der Knochenfische; Ueber *Mormyrus Kaschive* und *Oxyrrhynchus*; Bemerkung über den *Proteus anguinus*; Ansuchen um Beschaffung seltener Nilfische aus Chartum; Ueber das arterielle Gefäßsystem der Monotremen; Ueber die Schwimmblase des *Lepidosteus osseus*; Ueber die Pori abdominales, die Kiemenarterien und die Glandula thyreoides der Ganoiden; Ueber das Arteriensystem des *Lepidosteus*; Ueber das Vorkommen von Wundernetzen bei *Hyrax syriacus*; Bemerkungen zu zwei anatomischen Abhandlungen über Manis und Myrmecophaga; Ueber das arterielle Gefäßsystem von *Dasypus*, *Bradypus* und *Orycteropus*; Ueber das Labyrinth und die Aortenbogen der Gattung *Ophiocephalus*; Ueber normale Quertheilung der Saurierwirbel; Zur Anatomie von *Saccobranchius singio*; Ueber einige Eigenthümlichkeiten der arteriellen Gefäßverästelungen bei den Seehunden und Walrossen; Ueber weibliche Oviducte bei männlichen Chimären und eine männliche Vesicula seminalis beim Weibchen; Kurze, vorläufige Notiz über einen für das hiesige zootomische Museum erworbenen *Chlamydomorphus truncatus*; Ueber den Zusammenhang der Geschlechts- und Harnwerkzeuge bei den Ganoiden; Beitrag zur Anatomie von *Heterotis Ehrenbergii*; Bericht über ein angebliches Bastardkalb; Kurzer Bericht über die Osteologie von *Chlamydomorphus truncatus*; Beweis, dass die Ursprünge der Coronararterien während der Systole der Kammern von den Semilunarklappen nicht bedeckt werden und dass der Eintritt des Blutes in dieselben nicht während der Diastole stattfindet; Monographie des *Chlamydomorphus truncatus* (Fortsetzung und Schluss); Ueber die accessorischen Kiemenorgane und den Darmcanal der Clupeaceen; Ueber *Mormyrus* und *Gymnarchus*; Ueber den Amphibienkreislauf von *Amphipneus* und *Monopterus*; Das arterielle Gefäßsystem der Rochen; Ueber die Plica nervi laryngei; Anatomische Untersuchungen des *Clarotes Heuglini*; Inhaltsanzeige der von Prof. Luschka in Tübingen für die Denkschriften eingesendeten Abhandlung: Die Halsrippen und die Ossa suprasternalia des Menschen; Notiz über das Cavum praepertitoneale Retzii in der vorderen Bauchwand des Menschen und über die Lineae semicirculares Douglassi von Retzius; Zwei Varianten des Musculus sternoclavicularis; Ueber spontane Dehiscenz des Tegmen tympani und der Cellulae mastoideae; Vorlage und Inhaltsanzeige einer anatomischen Abhandlung (Der Herzbeutel und die Fascia endothoracica) von Prof. Luschka in Tübingen; Ein Fall von Processus supracondyloideus femoris am Lebenden; Berichtigung über die Ala parva Ingrassiae; Vorläufige Anzeige über gefäßlose Herzen; Die Trochlearfortsätze der menschlichen Knochen; Angeborener Mangel der unteren Nasenmuscheln und des Siebbeinlabyrinthes; Ueber Wirbelsynostosen und Wirbelsuturen bei Fischen; Ueber wahre und falsche Schaltknochen in der Pars orbitaria des Stirnbeines; Ueber das epigonale Kiemenorgan der Lutodeira; Ueber anangische Netzhäute; Ueber eine neue Rippenart bei *Polyacanthus Hasselti*; Ueber das Vorkommen falscher Schaltknochen in der äusseren Wand der menschlichen Highmoreshöhle; Ueber eine eigenthümliche Anordnung der Schlagadern an den unteren Extremitäten des neuseeländischen

Vogels ohne Flügel (*Apteryx australis*); Ueber die Arteria azygos der menschlichen Zunge; Ueber den unmittelbaren Uebergang einer grösseren Arterie in eine gleich starke Vene bei den Cheiropteren; Ueber die sogenannte Nierenpfortader bei den Amphibien; Ueber eine merkwürdige, constant vorkommende Vergrösserung des Leber-Pfortadergebietes bei den Batrachia anura; Ueber einen neuen Muskel des Menschen; Ueber endlose Nervenfasern an der Anastomose des Obturatorius mit dem Obturatorius accessorius; Ueber den Porus crotaphitico-buccinatorius beim Menschen; Ueber den Bau der Fischniere; Ueber den Bau der Niere bei den Amphibien; Ueber Injectionen der Wirbelthiernieren und deren Ergebnisse; Ueber die accessorischen Strecksehnen der kleinen Zehe und ihr Verhalten zum Ligamentum interbasicum dorsale der zwei letzten Mittelfussknochen; Neue Wundernetze und Geflechte bei Vögeln und Säugethieren; Ueber abwickelbare Gefässknäuel in der Zunge der Batrachia; Ueber eine Eigenthümlichkeit des Schlundes bei *Catla Buchananii*; Ueber das Verhalten der Leberarterie zur Pfortader bei Amphibien und Fischen; Ueber Wirbelassimilation bei Amphibien; Ueber normale und abnorme Verhältnisse der Schlagadern des Unterschenkels; Ueber die Einmündung des Ductus coledochus in eine Appendix pylorica; Ueber die sogenannten Herzvenen der Batrachier; Kurze Inhaltsanzeige einer im nächsten Jahre zu veröffentlichenden Abhandlung über die Anatomie des Riesensalamanders; Ein freier Körper im Herzbeutel; Ueber endlose Nerven; Ein Pancreas accessorium und Pancreas divisum; Eine quere Schleimhautfalte in der Kehlkopfhöhle; Ueber Anomalien des menschlichen Steissbeines; Ueber den Seitencanal von Lota; Ueber Ampullen im Ductus cysticus der Fische; Die Bulbi der Placentararterien; Ueber die Blutgefässe der äusseren Kiemendeckelkieme von *Polypterus Lapradei* Steind.; Ein insulärer Schaltknochen im Seitenwandbein; Ein präcorneales Gefässnetz am Menschenauge; Eine Spiralklappe in der Pfortader der Nagethiere; Das Nierenbecken der Säugethiere und des Menschen; Die doppelten Schläfelinien der Menschenschädel und ihr Verhältniss zur Form der Hirnschale; Ueber den Amphibienkreislauf von Amphipnous und Monopterus; Das arterielle Gefässsystem der Rochen; Anatomische Untersuchungen des *Clarotes Heuglini*; Ueber Trochlearfortsätze der menschlichen Knochen; Ueber Wirbelsynostosen und Wirbelsuturen bei Fischen; Ueber das epigonale Kiemenorgan der Lutodeira; Neue Wundernetze und Geflechte bei Vögeln und Säugethieren; Ueber normale und abnorme Verhältnisse der Schlagadern des Unterschenkels; Ueber Ampullen am Ductus cysticus der Fische; Die Bulbi der Placentararterien; Das Nierenbecken der Säugethiere und des Menschen; Die doppelten Schläfelinien der Menschenschädel und ihr Verhältniss zur Form der Hirnschale; Ueber die Nierenknäuel der Haifische; Ueber die Caudel- und Kopfsinusse der Fische und das damit zusammenhängende Seitengefässsystem; Réflexions anatomiques et physiologiques sur les représentations gymnastiques; On the Ophthalmic Vein, joining the Portal System; On Portions of Lungs Destitute of Blood-vessels; On the Radial Artery in the Chiroptera; Processus pneumaticus ossis occipitis; Entdeckung zweier neuer Muskel (broncho- und pleuro-oesophageus); Beiträge zur Physiologie der Harnsecretion; Beiträge zur angewandten Anatomie des Hüftgelenkes; Recension über Wilson's Compendium der Anatomie des Menschen, dritter Jahrgang; Recension über Tiedemann's Supplementa ad Tabulas arteriarum corporis humani; Lepidosiren paradoxa; Ueber eine unpaare Geschlechtsböhle beim Manne; Ueber ein wahres Ren tertium; Ein Fall von Persistenz der Vasa omphalo-mesenterica; Ein unbeschriebener Fall von Vermehrung der primitiven Aortenäste; Ueber das Vorkommen eines dritten Kopfes des Biceps brachii; Ueber den Ramus diploeticus der Arteria occipitalis; Ar-

teria palatina ascendens, vertebralis, occipitalis, lingualis und thyreoidae; Pacini'sche Körperchen am Nervus infra-orbitalis; Ueber Schaltknochen am Nasenrücken; Ueber perennirende Fissuren an Schädeln Erwachsener; Ueber eine neue Methode, Organen-Lymphgefässe zu injiciren; Ueber die Rami perforantes der Meningea media; Die Lymphgefässe in den Subarachnoidalräumen; Ursprung der Chylusgefässe; Afterbälge und blinde Hämorrhoidalknoten; Abnormer Verlauf der Ulnararterie; Chirurgisch beachtenswerther Verlauf der Lumbalis quarta; Doppelte Arteria splenica; Gefässverkehr durch Verwachsungsstellen zwischen Herz und Herzbeutel; Ueber das Verhalten der Blutgefässe in dem fibrösen Gewebe; Ueber das arterielle Gefässsystem von Inuus; Ueber Perforation des Schienbeins durch die Arteria tibialis; Ueber Steigbängelarterien beim Menschen; Ueber die Herzknochen von *Antilope Gnou*; Neue Beobachtungen auf dem Gebiete der menschlichen und vergleichenden Anatomie; Beiträge zur pathologischen Anatomie des Gehörorgans; Beobachtungen auf dem Gebiete der vergleichenden Gefässlehre (Fische, Amphibien, Säugethiere); Ueber Varietäten der Aorta; Ueber den Kopfkreis der Fische; Ueber den Bau der Kiemen der Fische; Ueber ein besonderes Gefässblatt des Schlangenauges; Ueber die Blutgefässe der Hyaloidea bei Amphibien; Ueber eine merkwürdige Einrichtung der grossen Schlagaderstämme bei den nackten Amphibien; Beobachtungen aus dem Gebiete der vergleichenden Gefässlehre; Ueber die Sesambeine des Gastrocnemius; Physiologisch-anatomische Bemerkungen über die Kniegelenksknorpel; Venenvarietäten; Ueber das Ciliarnervensystem des menschlichen Auges; Ueber die Arterien des Nervus opticus; Anatomische Untersuchung der Verdauungs- und Circulationsorgane einer doppelseitigen Monstrosität; Bemerkungen über einen neuen Muskel des menschlichen Ohres und über Gesichtsmuskeln; Bericht über einen 42jährigen Hermaphroditen; Eine interessante Verbildung des Ellbogengelenkes nebst Bemerkungen über chirurgische Mechanik der Gelenke; Einige in chirurgischer Beziehung wichtige Gefässvarietäten; Ueber Abnormitäten der Wirbel- und Basilararterie; Methode der Bereitung von Wachsgüssen des Labyrinths; Zur Angiologie des Proteus; Geschichte der Anatomie an der Prager Universität.

The preceding titles are those of essays published in periodicals; the following are those of independent works:

Antiquitates anatomicae rariores, quibus origo, incrementa et status anatomes apud antiquissimae memoriae gentes historica fide illustrantur. Wien 1835. *Strena anatomica de novis pulmonum vasis, in ophidiis nuperrime observatis.* Prag 1837. *Ueber einige Wundernetze bei Amphibien.* Prag 1841. *Vergleichend-anatomische Untersuchungen über das innere und mittlere Gehörorgan des Menschen und der Säugethiere.* Prag 1845. *Ueber die Selbststeuerung des Herzens.* Wien 1855. *Handbuch der praktischen Zergliederungskunst.* Wien 1860. *Cryptobranchus japonicus.* Wien 1865. *Das vergleichend-anatomische Museum an der Wiener medicinischen Facultät.* Wien 1865. *Vergangenheit und Gegenwart des Wiener anatomischen Museums.* Wien 1869. *Die Blutgefässe der menschlichen Nachgeburt in normalen und abnormen Verhältnissen.* Wien 1870. *Corrosions-Anatomie und deren Ergebnisse.* Wien 1872 ff. *Verzeichniss anatomischer Injectionspräparate.* 1873. *Das Arabische und Hebräische in der Anatomie.* Wien 1879. *Onomatologia anatomica.* Wien 1880. *Anatomische Präparate an der Wiener Weltausstellung.* Wien 1873. *Cranium cryptae Metelicensis.* Wien 1877. *Handbuch der topographischen Anatomie und ihrer praktisch-medicinisch-chirurgischen Anwendungen.* 7. Auflage. 1882. *Die alten deutschen Kunstworte in der Anatomie.* 1884. *Lehrbuch der Anatomie des Menschen.* 20. Auflage. 1889. *Bericht über das anatomische Institut der Karl-Ferdinands-Universität in Prag.* Prag 1841.

Lectures and Addresses.

THE RELATIVE IMPORTANCE OF PATHOLOGY IN THE MEDICAL CURRICULUM.

THE ADDRESS OF
THE CHAIRMAN OF THE SECTION IN MICROSCOPY AND PATHOLOGY
READ BEFORE THE TEXAS STATE MEDICAL ASSOCIATION, AUSTIN,
April 27, 1894.

By ALLEN J. SMITH, M. D.,

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MR. PRESIDENT AND GENTLEMEN OF THE ASSOCIATION: The circumstances of the establishment of this section in microscopy and pathology at the last annual session of the association held in the city where has been recently located the school of medicine of your State, and the courtesy manifested toward that school by your nomination of the officers of the new section from its staff of teachers, leave no room for doubt of the kindly attitude of the association to the medical department of the University of Texas. Realizing this generous compliment, I can not without discourtesy to the association refrain from acknowledgment and expression of our appreciation, and I believe that I can in no wise better formally inaugurate the proceedings of the section in pathology than by devoting introductory remarks to an annunciation of the views which, as teacher of pathology in your medical school, I hold as to the relative importance of pathology in the curriculum of medical studies, and in particular the scheme of instruction adopted in the school at Galveston.

The study of medicine includes three easily recognized groups of subjects: (a) the preliminary branches, as anatomy, physiology, and chemistry; (b) the study of the development and cause of disease and the changes of structure and alterations of function met in disease—the principles of medicine or pathology; and (c) the study of the application of these principles to the recognition and treatment of disease—the practice of medicine or of surgery in their different phases. Pathology, thus naturally assuming the mediate ground between biology and the practice of medicine, connecting the knowledge of the normal body with the knowledge of the means to overcome abnormalities in the body, constitutes one foot of the tripod upon which as a science medicine must stand. It forms the body of the science to which as members the various divisions of its practice are attached. In its own province it embraces all the features of disease of whatever nature, save only the treatment, and deals with the causes and development of disease and with the functional and structural alterations occurring in disease. It must therefore include, when one speaks strictly, many branches which are ordinarily distributed among other departments of a medical school than that of pathology. With every degree of propriety the study of the abnormalities produced by the administration of this or that drug, which, of course, is to be looked upon as an exciting cause to the production of these abnormalities or effects, has been relegated to the study of therapeutics as experimental therapeutics. So the study of the various chemi-

cal alterations met in the body in disease, the whole study of pathological or medical chemistry, has been properly included with the general study of chemistry; the entire medical scope of medical jurisprudence falls legitimately within the limits of pathology; and just as the tubercular joint, the fractured bone, the gunshot wound, and the bullet that produced the wound, just as the cancer of the liver, the contracted kidney, find their appropriate places in the pathological museum, so too in the study of these abnormalities should the altered physiology of the diseased organ or body be looked upon as properly a pathological study. Thus in fact, and thus only, can the study of symptoms, their relation with the disease which produces them, their significance as to diagnosis and prognosis—thus only can the *rationale* of the malady be regarded as legitimately a branch of pathology. In its fullest and truest significance, then, pathology is to be defined as the theory and science of medicine, to the understanding of which the study of the normal structure and function is requisite, and to which must be added the art of medical practice, that the full scope of medicine may be included.

While, of course, naturally and properly, it is impossible that the teaching of all medical science should emanate from the chair of pathology in a medical curriculum, than which in this day of development and specialism no claim can be more absurd, yet it is to be expected that pathological teaching shall, on the one hand, maintain clearly and fully the relations which disease bears to the normal bodily condition, and, on the other, as competently as the state of science permits, shall expound the altered modes of function of the diseased organ, the external manifestations of these altered functions, and the influences such changes bear to the other organs and functions and to the general welfare of the body. This is pathology, and the more strongly this view of its importance can be impressed, the clearer the idea of its significance as the basis and pillars of medical knowledge established in the mind of the student, the more value will there accrue to him from its study. He who would assume the responsibilities of medical practice without definite ideas as to the science upon which his practice must be founded is a very machine. Unfortunately, such an impression of pathology has not been the usual one given in medical schools in this country; its teaching has been left almost entirely to the practical chairs, and the necessarily cursory reviews so often given of the pathology of the affections treated of have proved in most cases all too meager for the purpose of giving the student the foundations for his medical reasonings, and have left him at the close of his medical-student days not a reasoning and intelligent physician ready to appreciate the varied relations and influences of the affections he may be called upon to see, but a mere automaton, performing certain things under certain conditions simply because of the remembered annunciations of his instructors—a man who might be expected to apply certain prescriptions to certain classes of cases because this is advised in somebody's formulary. Nor is it safe to assume because as a student a man has been able to glibly name from memory

the list of symptoms which characterize a given affection, that when confronted with that symptom group in perhaps an atypical arrangement or presentation he will be able to appreciate its meaning and make a correct diagnosis. The man who, leaving aside feats of memory, is able to view a symptom as a mere external manifestation of some underlying, perhaps internal, alteration, and is able to reason the latter from the former, is in every way the more capable individual. The man who recalls from his text-book that renal disease or cardiac disease may frequently present as a symptom dropsy is far more likely to miss entirely the vital point in his investigation for a diagnosis than the man who has been taught to regard dropsy merely as a manifestation of circulatory fault, and who has been trained to seek intelligently for the arterial disease or the cause of the venous or lymphatic insufficiency along the courses of these currents wherever examination is possible. It is the difference between the committing to memory of a table of statistics and knowing how to construct those statistics or to modify them without destroying their meaning whenever or wherever it may be desired. The failure to thus acquire the habits of pathological reasoning, of comparing the disease with the normal structure, the diseased function with the normal function, of seeking for the influences such changes may have upon the rest of the body, and their probable sequences—the failure to thus acquire the habits of study of the natural history of disease leaves a man hampered in his medical life to a degree that years of study, a whole lifetime perhaps, may never overcome. That good practitioners, intelligent physicians, able exponents of medical science have been educated without especial care in this one of the three great groups of medical study must be freely confessed; but they have been possible only because of natural abilities and in spite of their faulty training, not because of it.

Yet this fault of omission is by no means the only one I hold against the methods of teaching pathology in this country. It is a statement in which I will be borne out by a large proportion of my auditors that in those schools where a pretense of teaching pathology is made by the establishment of a chair, the instruction is almost entirely limited to pathological anatomy, particularly microscopic morbid anatomy, and perhaps bacteriology. And this is called pathology! It is pathology; but it is only part, and the dry part at that, of pathology. As well might one offer one of you the seeds, core, and rind, saying, "Here is an apple"; he has kept from you the only part for which you really care. One accepts the peel, the core, the seeds only with and for the meat of the fruit; alone they would be quickly thrown aside perhaps. So one studies the intricacies of pathological anatomy, the tedious and complicated uses and modes of microscopy, the tiresome and long-drawn methods of bacteriology, not so much for their own sake (although they possess an interest of their own) as for the acquirement of an understanding of something applicable in medical practice. Pathology is not only concerned with pathological specimens, with the "rags and tatters of disease"; it is not only a post-mortem study; it is a living and most useful branch of medical science. Yet the sneering

rebuke that the pathologist makes only post-mortem diagnoses has among us and in our day too much truth to be carelessly set aside. This overweening importance of pathological anatomy, the confusion of pathological histology, of microscopy as applied to medicine, with the entire science of pathology, has been the natural consequence of the strong impetus given the anatomical school of pathology by the great Virchow, and no one should decry the importance of the work of that school from whose labors so much of our advance in medical knowledge has been derived. Yet there is a pathology beyond this for the medical practitioner; and in medical schools every effort should be made with a view of educating practitioners, allowing the advanced specialist to pursue his studies in advanced departments. General medical education should be directed to the production of the best results for the masses of the students, not for the production of specialists in any direction. An ideal medical education seeks to preserve a poise which is necessary to the clear comprehension by the individual of the relative practical value to him of every portion of his studies. The ideal education might with propriety be likened to a well-executed picture; harmony prevails in every detail of color, shade, and perspective. So in medical training no portion should be permitted to overshadow its related branches, no part of one subject should be permitted to occupy the position that properly belongs to the whole. Pathology comprises three well-marked schools—one of anatomical pathology, of which our own Gross and the immortal Virchow stand as the best modern exponents; an ætiological school, at whose front stand the bacteriologists; and a physiological school, the least developed but the most surely applicable of the three to the wants of the busy practitioner of medicine and headed by the workers in clinical medicine all over the world. The order of their mention may be taken as the order of their full development in recent medical history. Anatomical study of diseased tissues was lifted from its chaotic condition by the doctrines of cellular pathology of Virchow, and since then has advanced with the increasing facilities for observation, so that but few years ago, within my own recollection, it occupied almost the entire field of pathological instruction. Made possible by the perfection of the microscope and by the apparent exhaustion of results from anatomical study of diseased tissues, pathological observation naturally and easily drifted toward the examination into the existence and nature of the parasitic micro-organisms; and the brilliant successes of this ætiological school have attracted so much attention to the study of bacteriology that at present it has far outgrown its relative importance in the study and teaching of pathology, and occupies a position equal to that of the branch of which it is but a small part, or more prominent even in the curricula of many schools. Thus, one after the other, as means of observation became more and more nearly perfected, these two schools, of pathological anatomy and of ætiology, have usurped positions of undue importance in the attention of the profession and in the study and teaching of pathology; while the third—the school of pathological physiology—limited by the imperfections of its sister schools, and failing to attract the same

experimental attention and popularity because of the difficulty of demonstration and proof of its principles and details, has had but comparatively slow growth and has never received half the attention from teachers of pathology that its great practical worth demands. It is this branch—pathological physiology—concerned with the reasons for and the manner of development of symptoms, the outward indications of altered functions, with the influences which disease in one part bears to the workings of the rest of the system; it is this which is the *summum bonum* of pathology; it is the meat of the fruit; it is the pathology of living beings; it is that part of pathology the appreciation of which makes of a man an intelligent practitioner of medicine, and the ignorance of which makes of him the routine follower of other men's methods. This I deem the proper end in which pathological teaching should culminate, for which all the training in morbid anatomy and in every branch of ætiology is preparatory, and by which the problems of clinical medicine will eventually be solved. It is bound indissolubly with the studies of pathological anatomy, chemistry, and ætiology, and, that it may be intelligently known, presupposes a thorough acquaintance with these elementary portions of the subject. A clinician whose clinical practice, study, and methods of instruction do not include the anatomical, chemical, and ætiological features of the affections he approaches, can be regarded only in the light of an empiric, blind to the signs of the road by which he travels. The man who has studied pathology only in its aspects of bacteriology and microscopic and gross morbid anatomy might serve well as a coroner, might act as a capable assistant to a chair of pathology, but until he has grasped the full import of his subject can not with propriety be trusted to teach pathology as a science. It seems to me almost as bad to thus warp the subject so as to allow one of its constituent branches to represent the whole as to entirely suppress and ignore the subject. It is a serious mistake. Medical students must be educated not merely as autopsy makers, but as those who have problems to work out in the living body; and their work in pathological histology and bacteriology and in the chemical laboratory should be held only as means to an end, only as introductory to the philosophy of disease with which their life work ever deals. This, gentlemen, is my view of the status of the branches of pathology, and no course of instruction which does not acknowledge and attempt as much as I have indicated can fulfill the best purpose for which it was created. We have no right to teach bacteriology to the exclusion, relative or absolute, of the equally important subjects that are also included in ætiology, or to the exclusion, relative or absolute, of proper instruction in pathological histology; we have no right to usurp to the study of gross and minute morbid anatomy time which should be equally spent upon the questions of the causation of disease; and neither of these by right may be pursued to the exclusion of consideration of the problems of pathological physiology. It is proper that the student be taught the nature of the micro-organisms which may be causative of an acute endocarditis; it is equally right that he be instructed as to the gross and microscopic changes which are

eventually wrought in the affected valve when the acute process is over and done; but at least as much effort should be expended that he may be led to comprehend how these changes make known their presence, why they are bound eventually to end in cardiac hypertrophy and in degeneration, how these subsequent alterations must indicate their existence, how and why such modifications in the heart must induce changes in the vascular system, in the lungs, in the liver, in the spleen and kidneys—in short, all over the body—and how he shall estimate the rapidity of the progression of these alterations as well as to what termination he must look. I had rather teach one man to follow such a line of reasoning than to educate a hundred experts in bacteriology or pathological histology who have no further conception of the subject, yet are expected to recognize and treat disease as practitioners of medicine. I feel and speak strongly upon this subject, for I verily believe the claim expressed by many a student that the time put upon pathology, as it is commonly taught, is little better than time wasted, is not a preposterous claim by any means.

At this point I desire to express my objection in unhesitating terms—although I am aware that I am addressing men as impotent in the matter as myself—to the serious mistakes into which the committee on formulation of a curriculum for the Association of American Medical Colleges has fallen. This committee, composed of some of the best-known educators in the American profession, has arranged a schedule which is to represent the least amount of instruction which will be accepted as sufficient in colleges of the association (which includes by far the greater number of the reputable medical schools of the country) when the new four-years curriculum is established. I object to a number of items, but I can with relevancy call your attention to but one or two of the discrepancies which have been proposed. I refer especially to the relative amounts of time to be given to pathology and bacteriology, both by lecture and laboratory instruction, and incidentally call your attention to the fact that the amount of clinical teaching is left entirely to the discretion or necessities of the respective schools, no number of hours being exacted by the schedule as prepared by these gentlemen. According to the views of this committee, there should be devoted to bacteriology twenty-five lecture hours and a hundred and fifty hours of laboratory work by each student, a total of a hundred and seventy-five hours; in pathology, fifty hours of lecture attendance and a hundred hours of laboratory exercise, a total of a hundred and fifty hours, are deemed sufficient—less by twenty-five hours (an hour per week for one term) than that required for the study of a subdivision of a division of the subject. If there ever was an instance of the familiar simile of the tail wagging the dog, this must of a verity be such a one. If the aim of the medical school was the education of a class of bacteriologists, one can conceive—although it truly requires a stretch of the imagination to accomplish the conception—how such a relative arrangement might prove efficient; but such an aim can not for a moment be accepted as real. If, of a hundred men in a medical class, two should pursue

actively bacteriological investigations in their life, it would be a greater proportion than is usual in this country, and such a proportion would probably be quite able to perform all the bacteriological work for the rest of the profession and more than fill the proper ratio of this country among the bacteriologists of the world; for, calculated upon such a basis, there would be annually added to the list of those engaged in bacteriological work in the United States from thirty to forty new men. The other ninety-eight per cent. of the class must look forward to active medical practice if they are to remain within the profession; these men will never, beyond perhaps the staining of tubercle bacilli in the sputum and the demonstration of a few other micro-organisms for diagnostic purposes, do a single stroke in bacteriology, no matter how well they may have been instructed. To force these men to devote a hundred and seventy-five hours to work upon a subject for which they will never have active use beyond the appreciation of its principles, in order that two other men may be thoroughly trained in the details of the subject, is a gross misuse of time and an injustice to the majority. Provision should always be made, I hold, for the advanced work which is necessary to the proper training of the competent bacteriologist; but the general class of students should not receive more than the general principles, with just enough practice in the subject to impress these principles. This should be accomplished easily in twenty-five lectures and the same number of laboratory hours—less than one third the time advised by the medical college association. This practical work should include the preparation of various nutrient media, the staining of bacteria by a few of the most reliable methods, sterilization and the preservation of cleanliness, inoculation of tubes with a few picked forms of bacteria, inoculation of animals and observation from time to time of the results, the examination and recognition in tubes and under the microscope of the important pathogenic bacteria, and demonstration of special work, as the examination of water, air, and the detection of cholera, diphtheria, typhoid-fever, and other germs—all this carried out under the guidance and assistance of a competent demonstrator who shall continue the work as necessary during the absence of the class. If the intervals are properly arranged, this amount of matter can easily be covered in twenty-five hours. I speak after due consideration when I assert that more time than this devoted to our general classes is nearly lost. I can not forget the remarks of a certain gentleman in one of the sections of the Pan-American Medical Congress, who, in the most patronizing manner, as an assistant in one of the larger medical schools, I believe, assured the smaller schools that by giving prominence to laboratory instruction in bacteriology they might the more nearly approach the level of recognition from the greater institutions of medical learning. I have thought a number of times, when looking over the schedule submitted by the above-named committee, that it bore the imprint of these smaller schools with far too little clinical material to occupy their spare time. Bacteriology is important, but it is not a whit more important than the study of the causes of disease, such as climate and atmospheric influences, racial and

sexual influences, age, heredity, and a host of other predisposing causes, as well as the poisons and the animal micro-organisms which within the past few years have attracted so much attention. Modern medicine has been full of fads and fashions, and bacteriology has become a fad. In its place it must be insisted upon as an important part of pathology; but its present claim to undue prominence in pathological teaching is unfortunate and the result of misdirected zeal.

Of the allotment of but fifty hours' lecture and a hundred hours' laboratory work to the teaching of pathology in general in the four-years curriculum I care to add no more to what I have already said than to express my regrets for its utter insufficiency and to say that with the three-years course of seven months and a half each, now maintained in the medical school of the University of Texas, I find considerably more than twice that time quite too little, and hope with the establishment of the four-years course to triple it with advantage to my classes. The matter is really beneath discussion when brought to the plane set by this committee.

It was at first my purpose, gentlemen, to devote a part of my remarks to the recent advances in the different departments of pathology, but the length to which my address has already grown and the fact of my reappointment as chairman of the section for the ensuing year induce me to withdraw that portion of the subject; and with a brief presentation of the course in pathology in the medical college of your State, arranged in accordance with the views I have expressed, I shall conclude. Becoming associated with its faculty at the inception of the school, I was fortunate in being permitted to name my chair as I deemed proper, and it therefore bears the name of the professorship of pathology, not of bacteriology, histology, and pathology, not of general pathology and morbid anatomy—but of pathology, without any limitations. Modeled after the excellent work on general pathology written by the late Professor Wagner, the instruction of the first year first includes in about twenty-four or twenty-five lectures a certain amount of elementary matter and definitions, the classification of disease, and the predisposing causes of disease; this is followed by sixteen or eighteen lectures upon the principles of bacteriology, with demonstration of the important methods of the study and exhibition of various forms of bacteria both in their naked-eye growth and under the microscope, the practical work of the student being postponed until the third year because of the general unfitness of a beginner to handle such delicate matters. The whole subject of bacteriology might with reason be postponed to the latter part of the student's course were not a certain amount of knowledge necessary to his comprehension of many of the pathological problems in medicine and surgery in the clinical and lecture teachings of the second and third years, and were it not that by including the subject in the same group of lectures with the other elements of ætiology the relative position of the study may be the better maintained. In the remaining fourteen or fifteen lectures of the first year the animal parasites and micro-organisms are considered, an amount of attention by

no means thrown away before a class gathered from this part of the country where animal parasites are so commonly encountered. In the second year the lectures, between fifty and sixty in number, are devoted to the pathological processes, simple and compound—hypertrophy, atrophy, the degenerative and necrotic processes, hyperæmia and anæmia, hæmorrhage, inflammation, regeneration and tumor formation, as well as the infectious granulomata. In the laboratory three hours a week throughout the session are devoted to pathological histology, an attempt to follow the lecture subjects being made, and to clinical microscopy, including the examination of sputum, blood, vomit, and faecal matter. In the third year two lectures each week are devoted to special pathology, to the pathology of each organ, especial attention being given to the questions of pathological physiology of each organ and the influences of such disease upon the workings of the other organs and the development of symptoms; in the laboratory three hours each week are occupied, one with gross morbid anatomy, one with a continuation of the study of microscopic morbid anatomy, and the third with practical bacteriology. In this course upon special pathology the lack of time is greatly felt, and rather than permit the student to obtain a merely superficial instruction and thus perhaps acquire superficial habits of thought, I have been content each year to cover only a portion of the general system. In this direction the addition of another term to the curriculum can not but be most profitable. Autopsy-making is practiced at the times when the material is available, each member of the graduating class being expected to have performed at least one autopsy before the close of his course, and thus far this has been accomplished several times over each year, opportunities to do the same having also been given to many of the lower classmen. I do not believe that in any way the importance of pathological anatomy has been slighted, and I am confident that each student as he graduates has a clear comprehension of bacteriology and the methods it employs; but these have always been made only means to an end, as an introduction to the study of the every-day problems of sickness which every practitioner has to meet—why, given a certain condition, there should develop this symptom, how such a condition is going to influence the working of some other organ and its integrity, what is to be the termination of the train of events, and how long may that termination be postponed, or is it possible to avert it entirely. Further, I do not believe that a student goes from the school without a definite idea of the value of the branch that connects the study of the normal body with the practice of medicine, and I do not believe that a single one will acknowledge anything but that he makes the training he has received in pathology the basis for all the practical deductions and actions in his medical work. If I have thus persuaded you also, gentlemen, of the importance of the branch that deals with the eternal whys and hows and wherefores; if I have persuaded you that the science of pathology is greater than its offspring, bacteriology; if I have persuaded you that there is a higher, richer pathology for the practitioner of medicine than the mere making of post-mortem diagnoses; if I have

persuaded you that pathology deals with living, moving questions as well as with the dead and offal of disease—I have fully accomplished all I have desired in this introductory address; and if, agreeing with my position, I may have induced any regard for the school of medicine of the University of Texas in the minds of my auditors, my gratification will be great.

Original Communications.

THE TREATMENT OF CERTAIN SYMPTOMS OF CROUPOUS PNEUMONIA, PARTICULARLY IN ADULTS.* BY BEVERLEY ROBINSON, M. D.

THE two symptoms in connection with the first stage of croupous pneumonia which are of special interest as regards the efficacy of treatment are *pyrexia* and *pulmonary congestion*.

Personally, I have not thought it wise, as a rule, to give the modern antipyretic drugs except in occasional doses. Of these, I believe phenacetine to be the most satisfactory. It diminishes fever somewhat, and promotes sleep and the general comfort of the patient, without great risk of depression in a marked degree. Acetanilide, in doses of two to three grains, lowers temperature a degree or two, but without promoting the comfort of the patient or producing sleep. In doses of five grains or more it is evidently depressing. Neither of these drugs should be given continuously, and, as a rule, only when the temperature is over 103° F. I rely very much more upon the use of spirits of Mindererus, citrate of potash, and sulphate of magnesia to reduce temperature by action on the different emunctories of the economy—skin, kidneys, and bowels—than I do upon the former remedies. I believe still that three to five grains of quinine every four to six hours tend to diminish fever, while strengthening somewhat the heart, through diminution of local hyperæmia of the lungs, promotion of absorption of the fibrino-corpuseular exudation into the alveoli, and a possible antiseptic action on the blood itself.

As to the use of cold sponging, the ice coil, cold pack, or cool baths for the purpose of reducing temperature, I have come to the conclusion that they do not act in this manner with any special efficacy, as they are usually employed. In this country, at least, treatment with cold baths of croupous pneumonia has not yet become frequent. Occasionally when the temperature passes beyond 104° F., and is accompanied with delirium, rapid and feeble pulse, frequent respiration, and other evidences of intense poisoning or adynamia, the tub bath at a temperature of 80° to 90° F. may be usefully employed. Not that the temperature always falls much after the use of these baths, but, combined with continuous frictions during the bath, they

* Read before the Association of American Physicians, May 29, 1894.

certainly quiet delirium, awaken latent nervous energy, and stimulate capillary circulation over the surface of the body.

While these effects are customary according to those who have made frequent use of cold tubs in the treatment of croupous pneumonia, I must confess that until lately I have been very doubtful as to their beneficial action. More than once I have seen bad rather than good results follow immersion. The patient has become more cyanosed, dyspnoea more marked, and if anything the pulmonary congestion more intense. I am inclined to believe that sponging is a decidedly wiser method than the tub baths in many cases if it be combined, too, with friction to help improve the patient's condition through its combined action in lowering temperature slightly and in increasing nervous energy.

I am especially indebted to Dr. J. Nelson Teeter, House Physician of the Third Medical Division, Bellevue Hospital, New York, for the privilege of seeing several cases treated with cool bed baths. The results by this means, obtained in the wards of Dr. A. A. Smith and Dr. Hermann M. Biggs, have been very satisfactory, and particularly so when compared, as I am informed, with the other modes of treatment employed at the same time and on the same class of patients. The advantages of the bed baths are the avoidance of moving and shock and the ease with which they can be given. The bed is simply covered with a rubber cloth extending well over the sides and foot of the bed. Underneath it and around the margin of the cloth a rolled blanket is placed so as to form a sort of trough in which the patient lies while some water is poured into it and the sponging of the whole surface of the body conducted. The temperature of the water is lowered or raised with ice or hot water as may be desirable. The bath lasts from fifteen to thirty minutes, and is repeated whenever the temperature exceeds 103° F. The chilly sensations after the bath are moderate and easily subdued with stimulation and a hot-water bag to the feet. The patient expresses relief from the bath, his pulse becomes stronger, and the nervous manifestations less pronounced. The temperature within an hour subsequent to the bath falls one or two degrees. No complications have occurred which could fairly be attributed to the bed tub bath. As there is no lifting or immersion of the entire body of the patient, one or two attendants can give these baths satisfactorily when required, and particularly among women there is far less nervous dread of the bath than there is when an attempt is made to give the ordinary tub bath.

At St. Luke's Hospital I have had the opportunity to observe and carefully inquire into the use of aconitine when given at this stage, and often at a later period, with respect to its action on the temperature and pulse. After many trials of this drug I have been led to believe that its use by itself may often be injurious by diminishing the energy of cardiac contractions, so that they are with some difficulty again strengthened. Even when combined in its use with digitaline, or digitaline and strychnine, it is not free at times from grave objections. Aconite or aconitine seems

to act mainly by reducing the tension of the radial pulse and lessening the number of heart beats, while it diminishes their strength by its paralyzing effect on the ganglia and nerves controlling cardiac contractions. This poisonous effect of aconite upon the heart through its motor ganglia may be shown by direct applications of the drug. As a result of these, the heart is slowed in a very threatening manner, and may stop in diastole.

According to the researches of Ringer and Murrell, aconite paralyzes all nitrogenous tissues, and it is in this way that the heart beats are retarded. Aconitine is an extremely virulent poison, and, according to some authors, more powerful even than hydrocyanic acid. It is scarcely adapted to internal use, as even a fiftieth of a grain has produced alarming results.*

Patten states that the primary stimulation which aconite produces upon the vagus center in the medulla slows the heart-rate at first, but its depressant action upon the motor cardiac centers and the vagus end organs in the heart is soon manifested, and the heart-rate becomes very rapid.† The primary stimulation of the heart is not only quickly effected, but is also produced by very small doses. If the drug is continued or given in large doses, the vasomotor centers become gradually paralyzed, the blood pressure falls greatly, and the pulse is exceedingly weak and irregular. "Great muscular weakness and dyspnoea occur, the respiration being slow, shallow, and feeble. The dyspnoea, and probably the weakness also, depend to a considerable extent upon the feebleness of the circulation and consequent imperfect nutrition of the nervous centers.‡

As regards its use in pneumonia, Phillips* states that within a few days he has noticed both reduction of temperature and pulse, and believes that it controls and removes the tendency to extension of the congestion. On the other hand, Dr. Wilson Fox did not find that it had any effect on the temperature. For my part, I do not believe that its action is desirable in the treatment of croupous pneumonia where the pulmonary congestion even of the other lung is often so considerable, and where we have to dread so frequently the gradual or rapid giving out of heart power. In this connection I am glad to quote the following from Dr. Powell:

"We can frequently only conjecture the cause of the *pyrexia* in the early hours of pneumonia, and considering the nature and peculiar danger in the later stages of pneumonia, perhaps the worst treatment of this symptom is that very generally adopted—viz., the administration of aconite. The favorable issue of the disease usually turns upon the maintenance of heart power and vessel tonicity, both of which are lowered by aconite at the very outset, sometimes beyond recall, as has happened in cases that have come within my experience."

Of course, this evil effect of aconite is lessened or neutralized by simultaneous and frequent use of digitaline and

* Biddle's *Materia Medica*, twelfth edition, pp. 236, 237.

† Potter. *Materia Medica*, fourth edition, p. 77.

‡ Bruntton. *Pharmacology, Therapeutics, and Materia Medica*, Philadelphia, 1889, p. 833.

* *Materia Medica*, p. 7.

strychnine; and yet I can not believe, even with the neutralizing effect of these drugs, that aconite in a disease of the type of croupous pneumonia either "abates the symptoms or favors the removal of the products of inflammation by increasing elimination through the skin and kidneys"; or that "generally in fibrinous pneumonia aconite is sufficient up to the period of crisis." *

To my mind there are other drugs eminently more useful, not only theoretically but practically, and here I am speaking both of pulmonary congestion and of pyrexia, which is closely allied with it; and often, as it were, being increased in degree when the congestion is more extensive and intense.

I have never seen any drug act as well in this stage of pneumonia as small repeated doses of antimony. The salt I have given most frequently is not tartar emetic, but kermes mineral, or the oxysulphuret of antimony. I have given it in a mixture with syrup of gum and orange-flower water, usually in doses of a thirty-second of a grain every two hours or every hour for a while; employed in this manner, fever and pulmonary congestion diminish at times in a very obvious manner. Expectoration becomes easier and more abundant, and the sputa, from being very tenacious and viscid, are more fluid and brought up with relative ease and increased frequency. Thus the dyspnoea is lessened without doubt. Kermes mineral given in the way I have mentioned is not irritating to the digestive tract as tartar emetic often is, even in small doses. Moreover, it does not produce a collapsed condition. It can be given as an expectorant with particular advantage in pneumonias grafted upon bronchitis, which are so frequent among old people. It suits children also remarkably well, in whom the stomach often rebels against the use of tartar emetic.† To aid its advantageous effects, we should employ at times alcohol internally and revulsives to the chest walls.

Kermes mineral was recommended formerly by Professor Meigs as an invaluable medicine in childbed fevers to promote diaphoresis and to reduce the force of the circulation. We usually associate remorseless bleeding and the use of antimony (tartar emetic) with the name of Rasori (1837, Milan); and whenever this drug is referred to enthusiastically we are inclined to view it with some wholesome dread. Nevertheless, in pneumonia particularly, there is no doubt in my mind about the tolerance obtained for this drug, nor indeed of the possibility of its preventing or greatly modifying hepatization of lung tissue in some cases. Admitting that this statement should not be accepted as correct by some pathologists, yet such an expression of opinion would not change my own judgment of its utility.

As far back as 1841 Grisolle wrote that antimony improved the general condition in pneumonia, even though it might not change the local state and dispose the economy to receive other therapeutic agents. Certainly with such testimony and that of Trousseau (1831-1832)—who says, in speaking of the use of antimony in croupous pneumonia, "Nothing is more remarkable than the rapidity of recovery;

there is no convalescence; three days suffice sometimes to bring back the patient from the gate of the grave to a state of health"—we should avoid undue skepticism.

Sturges* takes the view that in the cases referred to by Trousseau the natural march of pneumonia was so much disguised by drug interference that wholly false conclusions were reached. I can not admit this statement of Sturges as wholly correct, for while I have not seen such effects as those described by Trousseau from the action of antimony in pneumonia, neither have I ever seen what these words of Trousseau fairly describe, as Sturges states, "the natural course of the disease in many cases under our modern treatment." By this, I presume, he means expectancy, since otherwise natural course of disease appears to my mind a misnomer. In the tabular statement of the results of treatment of pneumonia by Grisolle we find in his third class where eighteen died out of thirty; "of the twelve who recovered, nine" in the greatest peril "improved rapidly under the antimony" (Sturges). The patients improved under the antimony treatment with a rapidity unobserved in any other treatment—a statement corroborated, as we have seen, by Trousseau" (Sturges). The probabilities are that the antimony (tartar emetic), which was given in doses of a sixth of a grain to a grain every hour or two, caused the frequent vomiting and stools from which patients thus treated suffered in the first twenty-four hours. "Nevertheless, in the concurrent testimony of two independent observers, the general improvement following these truly drastic measures was so obvious as to suggest the figure of a man snatched from the grave." (*Loc. cit.*, p. 395.)

I have become convinced that the great mistake made formerly was to employ the wrong salt and to use it in excessive doses. Against the kermes mineral employed in much smaller doses, frequently repeated, there are no such objections. And after the study of its action in a series of cases I am persuaded that this remedy is not futile, and is often of value in pneumonia as an expectorant and in the other ways to which I have referred. Osler (p. 532) considers that it would be a real gain in cases of sthenic pneumonia "to loosen the cough and give to the sputa a certain degree of fluidity." Now, in my experience, these results are distinctly obtained with the rational use of kermes mineral in the first and second stages of croupous pneumonia.

Whenever the heart is particularly taxed by reason of the pulmonary congestion and a tendency to œdema, as shown by very numerous moist râles at the bases posteriorly, and more or less frothy expectoration combined with the sanguinolent or rusty sputa, I am confident that no drug produces the rapid and remarkable results of nitroglycerin given by the mouth, or, better still, hypodermically. In these instances we must not rigidly adhere to the ordinary dose of a hundredth of a grain, but use a fiftieth or a twenty-fifth if the condition of the patient is imminently threatening. The tension of the pulse is by no means an invariable or true guide for the use of nitroglycerin under these circumstances, as often when the pulse is very frequent, depressible, and irregular it will gain force by the

* Bartholow. *Materia Medica*, eighth edition, p. 673.

† *Dict. encyclopéd. des sci. méd.*, 2me série, t. xxvi, p. 547.

* *Pneumonia*, second edition, London, 1890.

use of this drug. Moreover, the cyanosis of lips, face, and upper surface of the body, together with the rapid, superficial, panting respiration, will both be favorably modified. The skin soon takes on a better color and the breathing becomes steadier, deeper, and slower.

The use of inhalations of oxygen in relieving pulmonary congestion has, in my experience, afforded marked temporary relief to breathing in the greater number of cases of pneumonia. There are, however, exceptions to this rule, and in a few instances not even relief was afforded, but the dyspnoea and subjective distress was, on the contrary, obviously increased by inhalations of this gas. The cases of general oedema were those, singular to relate, in which I have remarked the greatest extremes. While some patients thus affected were notably relieved, others were made more anxious, and, if possible, still greater sufferers. I have not been able to account invariably for these differences of action. I have assumed, however, that whenever the pulmonary engorgement was most considerable and yet independent apparently of right-heart failure, the oxygen proved to be particularly serviceable. In instances in which the right heart finally gave way, and with increasing dyspnoea the accentuation of the second heart sound over the pulmonary orifice diminished notably in intensity, while the pulse remained small, feeble, frequent, and irregular, oxygen has not proved itself so important an agent for good; and yet some writers find "that when the condition is mainly one of cardiac failure and collapse, particular benefit is obtained."*

I shall be glad to have an expression of opinion on this point. Certainly there are cases of severe pneumonia in which the favorable action of oxygen is remarkable, and some of these are where cyanosis is most marked.

I am inclined to believe in the treatment of pneumonia, just as I am in the treatment of typhoid fever, that it is essential to have the patients drink abundantly of water, and not force them simply to take milk, beef-tea, or broths of different kinds, with the idea that all that is required is to give nutritious fluids and lose sight of the great importance of water given by the stomach to promote elimination of poisonous excreta through the skin and kidneys. Dr. Andrew H. Smith has insisted very forcibly, in my judgment, upon the importance of this indication in the following terms: "We are apt to give freely of albuminous substances, and too often the instinctive craving for simple water to dilute the blood and facilitate its passage through the lungs is met by the constant proffer of milk, beef-tea, etc., in which the water is spoiled for Nature's purpose by the addition of unnecessary food.† The abundant use of cold spring water, or it may be of soda or Apollinaris water, not only gives relief to the distressing thirst, but also helps reduce the fever and may diminish slightly the viscosity of the expectoration.‡ The drinking of the water in these cases is most useful, as it is in the treat-

ment of typhoid fever, by promoting abundant diuresis. It thus favors as much as possible the elimination of the products of organic disintegration. No doubt increased evaporation, or transpiration from the skin and lungs thus affected, reduces the abnormal temperature of the body.*

The proper use of alcohol in the treatment of pneumonia is one of the most difficult with which we have to do. Unquestionably in many instances it is very beneficial, and for different reasons. Putting aside its direct stimulating properties, it must be regarded as a very acceptable food in moderate amount. It is readily assimilable and easily oxidized. Moreover, it prevents tissue waste and diminishes the amount of carbon dioxide, thus helping respiration when this function is particularly embarrassed. Alcohol is a notable relaxor of vessels, and the capillary circulation is thus materially improved and relief afforded after this manner to a laboring heart and engorged vessels in the different internal viscera, lungs, liver, spleen, and kidneys.

Finally, alcohol gives nerve force, thus controlling adynamia, restlessness, wakefulness, and delirium, particularly when all these symptoms are but the index of the intense general poisoning of the system in pneumonia. It seems, therefore, that it is generally judicious practice, when any reasonable doubt prevails as to the condition of the patient with respect to any one of the numerous conditions which seem threatening to life, to give repeated and moderate doses of alcohol. I know of only two absolute counter-indications:

1. Cases in which the patient is already highly plethoric and where the mass of blood, rich apparently in all nutritive qualities, would merely have this state exaggerated, as it were, by alcohol, which is so readily and rapidly assimilated, and thus becomes positively a hindrance to the vital function. (Smith.)

2. Cases in which the hepatic engorgement and gastric catarrh render the use of alcohol pernicious, because nausea and stomachal intolerance are increased by its exhibition even in moderate amount, and thus assimilation of food and water is prevented.

In just such cases do we give most evident relief with repeated doses of calomel, small or moderate in amount, which arrest fermentative processes in the stomach and intestinal tract and free the portal circulation in the most evident manner. An engorged and sometimes tender liver, a hard and distended abdomen, are frequently dissipated by this medication. In this way notable relief is afforded both to the respiration and circulation, and not seldom the temperature will drop a degree or two after one or two free movements of the bowels. I am not at present referring to the use of calomel when the patient is first placed under treatment by the physician, but rather to cases in which treatment has continued for two or more days after the initial chill and where the tongue remains yellow and thickly coated with fur, while the breath is most offensive. Such an example was observed by me only a short time since, and I can not urge too strongly the importance of watching

* *The Therapeutic Gazette*, March 15, 1894, p. 184.

† *Amer. Journ. of the Med. Sci.*, October, 1890, and *Trans. of the Tenth Internat. Med. Congress*, Berlin. Osler, *loc. cit.*, p. 532.

* *Med. Record*, July 4, 1891, p. 11.

and treating intelligently such conditions, when they are clearly present.

The two dangers most to be feared in the stage of hepatization, as well as that of crisis, come undoubtedly from heart failure or pulmonary hyperæmia. The heart failure may come on suddenly, or manifest itself gradually. It may affect the entire heart, and in that case be, as a rule, caused by the intensity of the general poisoning of the system, or it may be occasioned by the giving way of the right heart under the dependence mainly of increasing pulmonary obstruction. This increased pulmonary obstruction is, moreover, evidently due in a measure not to the inflammatory nature of the disease, but rather to vascular paralysis, which comes on at any time from the fourth or fifth to the seventh or eighth day of the disease in numerous instances.

How are these conditions to be met? My own convictions are formally opposed to the use of digitalis, or digitaline, except in very small doses, and then only to control cardiac irregularity when it occurs. I have reached this opinion slowly. I feel confident, however, that it is based upon correct interpretation of pathological facts as they are offered to us. Digitalis, if it acts at all in any appreciable manner, must of necessity increase the power of the heart, at the same time that it narrows and closes up, so to speak, the circulation in small vessels. Now, in instances in which passive congestion is already a great danger, this effect is precisely what we should most wish to avoid. Nor do I believe that this unfortunate effect can be properly prevented by the relaxing effects of aconite, or aconitine, on the peripheral circulation, particularly under the conditions now referred to. It is true that I have never seen death ensue directly from the action of this drug at this time. I have known, however, the pulse to be lowered in a sudden and alarming manner, and it was necessary on more than one occasion to interrupt its use immediately, and to stimulate the patient freely according to every available method so as to restore failing strength to a semi-paralyzed heart, and even slight tension to the radial pulse.

Ever since Dr. Roosevelt* published his very striking communication on the hypodermic use of strychnine in large doses I have watched the use of this drug in my treatment of pneumonia with increasing interest. I employ it habitually—at first by the mouth, and later, whenever there is evidence of heart failure coming on, either occasionally or frequently according to the hypodermic method. Sometimes in the latter instances it is wise, and particularly when there is no marked stomachal intolerance, not to interrupt the use of strychnine by the mouth, but continue the use of the drug in this manner, and every two or three hours to give a hypodermic of strychnine from one sixtieth to one thirtieth of a grain. I have no doubt myself—and particularly in alcoholic subjects—that strychnine is a very useful drug. With others, I find the great objection to strychnine in too large or too frequent doses is that it produces a condition of nervous irritability which is

at times distressing and interferes with any possibility of sleep, unless narcotics in judicious doses are resorted to.

On several occasions already, when a patient's condition has seemed desperate, and after strychnine to the highest possible limit compatible with safety has been vainly employed, I have had at least temporary results of considerable value from the use of hypodermic injections of extract of coca, made up aseptically. I am of opinion, however, that we must rely also in these cases upon the use of nitroglycerin hypodermically in sufficient doses to restore the patient to a relatively good condition. These hypodermic injections, alternated with those of strychnine, will do what no other drugs in my experience will accomplish. The basis of the use of nitroglycerin is, as we all know, to bleed, so to speak, from the veins into the arteries, and thus allow the wearied and laboring heart to have the opportunity to tide over a critical period, where saving its energy is of as much if not more importance than our efforts to add to it.

In just such cases bleeding was formerly employed with, as we know, at least the happiest temporary effects, and it is probable that except for this seemingly heroic measure many lives would have been inevitably lost. Bleeding was the only means in those days which would act efficiently and rapidly, and if relief were not thus afforded to the acute and grievously obstructed pulmonary circulation, the patient fell suddenly into collapse and died.* Let us not ignore that these cases still occur, and, in my judgment, must be treated still in this manner. Only one means will save them, and this means is bleeding. Such cases, in general, are those which are evidently sthenic in character and where the inflammatory lesion seems most marked from the beginning; those cases in which, after twenty-four or forty-eight hours, both lungs are so much congested from venous paralysis and insufficient heart-power, that drugs can have, do have, no visible good effect, unless we take away an abundant amount of blood by venesection. Of course, in such instances, if the patient is an alcoholic, we are greatly handicapped by reason of probable degeneration of heart, kidneys, and arteries; but we can not be confident invariably to what extent this degeneration has gone, and we are frequently in the position of offering a man, practically, his last and only chance of survival.

Immediately after the bloodletting we may be able to use nitroglycerin, strychnine, or caffeine, hypodermically, with the greatest benefit. Frequently, of course, we shall be grievously disappointed as to the result, and our patient will die speedily despite all our efforts to save him. Even though the kidneys are apparently in good condition and there is no albuminuria, these sudden fatal occurrences take place. In such instances at times temporary benefit results from venesection, and we hope and believe for a few hours that the patient's condition has been really helped. Soon, however, a change comes for the worse, and death may follow within a few hours.

In reflecting upon some of these cases in which I have at first thought that the general pneumonic congestion was

* *Med. Record*, December 24, 1892, p. 728.

* *Dict. encyclopéd. des sci. méd., loc. cit.*, p. 297.

the direct, immediate cause of death, I have later concluded that a slowly forming ante-mortem heart-clot had much to do with the fatal termination. In one instance which I saw in consultation with Dr. I. E. Traub, of New York, and where we bled the patient about seventeen or eighteen ounces at the third day of the disease, we had at first notable relief to the breathing and circulation, but soon the symptoms of distress and restlessness came back in aggravated form and the patient grew worse suddenly and died. In this case no murmur could be heard in the cardiac region, and although the sounds were slightly muffled and the action extremely rapid, we only suspected the formation of heart-clot, without being able to affirm it. In view of the sudden death of the patient and without other sufficient causes satisfactorily to explain it, I now believe cardiac thrombosis was the immediate cause. I have not infrequently, especially in former years, and when I was a hospital interne, seen many autopsies where pneumonia undoubtedly occasioned the heart-clot which was the direct cause of death. While in these cases of pulmonary congestion I do not believe the venesection affords the relief which we should expect to derive from it, if this complication (heart-clot) had not arisen I am of opinion that if under these circumstances we should follow the venesection by the subcutaneous injection of a salt solution, we would possibly obtain happy results. It certainly seems rational to act in this manner, since we know that the chlorides in the first and second stages of pneumonia are passing too freely out of the blood, and no doubt require to be supplied. I am glad to note that another than myself has seen and utilized this indication with evident good effects.

In a late number of the *Virginia Medical Monthly* Dr. Cunningham, of Ensley, Ala., contributes a very valuable paper, in which he writes that he employs hypodermoclysis of saline solution, daily, in just such cases, with the object of preventing cardiac failure, which he thinks may be due to ante-mortem clot.

In some cases, no doubt, it is mainly a toxæmia which weakens the heart, and not simply the mechanically increased resistance in the right chambers. This seems to be proved by the great fall in the pulse, as well as in the breathing, coincident with the crisis, although the physical signs over the affected lung area may show no appreciable changes. Under these circumstances, according to Shattuck, it is the maintenance of nerve force which we must try to secure. This means the avoidance of every unnecessary fatigue and the administration of the largest amount of the most nutritious liquid food which can be digested, with free ventilation of the apartment.*

The opinion above expressed is also in part shared by Balfour.† This author states that when the pneumonia has fairly begun, the two conditions which have been admitted hitherto to weaken the heart most are excessive consolidation of lung tissue and hyperpyrexia. As regards the former, he writes:

"Excessive exudation within the lung tissue impoverishes the blood, and must, therefore, act injuriously on a weak heart

by enfeebling its tissue and starving its nerve centers; but as an obstacle to the circulation, throwing a strain upon the right heart, it is of small moment, as the instant the temperature falls convalescence proceeds uninterruptedly, the heart making no account of the apparent obstacle."

I would also say an emphatic word in favor of frequently repeated doses of *strong* black coffee. Black coffee and alcohol, particularly old brandy or rum, by the stomach, will be assimilated and hold the vitality of the patient when other food or stimulant will be of little or no apparent benefit. And yet, according to some writers, the notion that these liquors—viz., old brandy or whisky—are to be preferred because of the "mellowing" properties conferred by age, should be condemned as a delusion. Such liquors are declared to be much more irritant to the stomach and less certain in their general supporting effects than pure ethyl alcohol deprived of aroma.*

We are told, indeed, that the best French cognac is, "with a few exceptions, nothing but the alcohol of beets, of poor molasses, changed and colored by the fabricator by the addition of infusion of tea and various essences which give it bouquet." Such brandies are almost sure to contain methyl alcohol in quantity, certain when freely administered to do harm to the patient. Either such affirmations are false or else I have been particularly fortunate in employing cognac or whisky which produced no such deleterious results.

In my judgment, caffeine does not replace the use of coffee, and for the reason that the caffeotannic acid, in conjunction with certain extractive matter contained in coffee, is probably nutritive, whereas in caffeine we have only an alkaloid which increases the power of the cardiac contraction and raises somewhat arterial tension while promoting diuresis.

According to Delafield (Pepper's *American Text-book of the Theory and Practice of Medicine*, vol. ii, 555), the treatment of the exudative inflammation which seems to him the most satisfactory is that by the combined use of aconitine, digitaline, and whisky. The aconitine (one sixth of a milligramme) and digitaline (one eighth of a milligramme) are given in tablet form together. The frequency with which they are repeated is regulated by the pulse. The endeavor is made to get a pulse about 80 and of good quality. This treatment requires careful watching, and "if it be carried too far the pulse may fall to 30 and the patient pass into a condition approaching collapse."

According to some observers, it is mainly the action of aconite which slows the pulse, and it is this tablet which we should stop giving when the pulse reaches one hundred, or loses notably its force and becomes irregular. According to others, it is the digitaline which reduces the frequency of the pulse, "while the aconite, acting upon the heat-producing as well as the vaso-motor center, brings down the temperature to about 100°. My own observation is to the effect that the aconitine has more power in reducing the pulse-rate than in lowering temperature. If, however, as is often the case, after giving the aconitine regularly every hour for twenty-four or thirty-six hours at the first, second,

* *Therapeutic Gazette*, January 15, 1894, p. 42.

† *Edinburgh Medical Journal*, November, 1891.

* *Therapeutic Gazette*, January 15, 1894, p. 36.

or third day of the disease, we are compelled to interrupt its use for a while on account of general weakness or lowered arterial tension with irregular pulse, both pulse and temperature begin immediately to rise again and soon reach nearly their previous limit. It is very important to know, however, the source of these alkaloids, as I have frequently remarked that their action is seemingly variable, and at one time far more powerful than at another. If they are identical, how is it that with Chontaud's granules we can give half a milligramme or one milligramme every hour, and with Merck's the ordinary dose is one sixth or one eighth of a milligramme, and the effects obtained from these different doses are apparently similar?

In the treatment followed at St. Luke's Hospital, New York, half-milligramme doses of arseniate of strychnine are usually given together with the digitaline and aconitine. I have now had an opportunity of watching this treatment for a sufficient length of time to justify me in saying that I prefer the treatment as marked out by me in this paper to the one with the so-called "trinity pill," and I have come to this conclusion for the reasons given in what precedes. As near a perfect routine treatment for many cases of croupous pneumonia of moderate severity as we now possess seems to me to be found in the use of kermes mineral, strychnine, nitroglycerin, and alcohol in the manner described. Black coffee as food is much to be prized when other aliments, such as milk or broths, only in very limited quantities can be taken or assimilated. Sponging the surface, cold affusions to the chest and limbs, the ice coil on the abdomen, bed baths with friction of the entire body, or tub baths with similar rubbings have been used by some, it is said, with great benefit for their combined tonic and antipyretic effect, but are still of uncertain efficacy for many. Venesection will occasionally save life when all other means fail, and where, without interfering in this manner, death will surely and rapidly follow.

Finally, we should advisedly conclude, as it seems to me, that, so long as we shall not have discovered the specific agent capable of killing the microbe in the economy, or at least rendering its development impossible by sterilizing the organic site, the treatment of pneumonia will remain a symptomatic one, varying according to the indications from simple expectoration up to the most active medication.*

APPENDIX.

REPORT RECEIVED FROM DR. J. N. TEETER, HOUSE PHYSICIAN AT BELLEVUE HOSPITAL, NEW YORK.

The number of cases of acute lobar pneumonia treated in the Third Medical Division from October 1, 1893, until March 1, 1894, was thirty-eight; eleven of these died; four died within twelve hours after admission; five suffered from complications, as follows: three from delirium tremens, one from empyema and abscess of the liver, and one from acute diffuse nephritis.

Collectively the plan of treatment employed was, in brief, as follows:

Very few cases were received during the third stage, and simply opium was used for the pain. They usually came in

during the second stage, and were then given a cathartic of calomel, gr. v; sod. bicarb., gr. xv; with sal. Rochelle, $\frac{3}{4}$ ss., given about eight hours later. The temperature, pulse, and respiration were taken six times during the twenty-four hours. If the temperature was 103° F. or over, a sponge bath with brisk friction was employed, the water being at a temperature of 50° F., and the whole bath continuing for thirty minutes. Temperature was usually reduced about one degree Fahrenheit, and the nervous disturbance, delirium, and restlessness were lessened, and sleep followed.

If the patient had been a drinker, *alcohol* was used in the form of whisky, half an ounce being given six times during twenty-four hours. In other cases this stimulant was withheld until called for by a weak and rapid pulse with diminished second sound of the heart. It was then given in half-ounce doses six times a day, or increased as necessary up to half-ounce doses every two hours. Opium was usually given throughout the course of the disease in the form of the plain tincture or McMunn's elixir, using three to five minims every four hours. This relieved pain and nervous disturbance.

Nitroglycerin was administered when called for by a pulse of high tension, or in cases where cyanosis occurred, indicating failure of the right ventricle. In some cases four minims of nitroglycerin, $\frac{1}{100}$ -per-cent. solution, every three hours, was used with good effect.

Strychnine was given in all cases from the start, commencing with doses of gr. $\frac{1}{60}$ six times a day, and where cardiac weakness threatened it was increased up to gr. $\frac{1}{30}$ every three hours. It seemed to have a toning effect upon the heart's action, keeping the pulse regular and of good volume.

Digitalis was rarely used—only in a few cases where the pulse was very rapid (140 to 180) and feeble, and then it was always combined with glonoin.

In the stage of convalescence, cod-liver oil and tonics of iron, quinine, arsenic, and simple bitters were employed.

REPORT FROM DR. D. BOVAIRD ON THE TREATMENT OF PNEUMONIA AT THE PRESBYTERIAN HOSPITAL.

Many cases, of course, require nothing more than confinement to bed, fluid diet, and careful nursing, and these things are routine for every pneumonia patient received. The fluid diet, as usual, consists mainly of milk and broths. Rarely the milk may require peptonizing on account of the condition of the stomach.

Temperature.—Very often nothing is done directly for the temperature, as it does not seem to disturb the patient in any way. The temperature may run 104°, or even 105°, for some days, without giving the patient any apparent discomfort. In these cases we let it alone. On the other hand, where the patient feels the temperature, complains of the fever, is flushed, restless, and breathing rapidly from it, we resort to some antipyretic measures. A year ago the continuous bath at a temperature of 98° F. was employed in a number of cases, the results being satisfactory in part of the cases, in others not so. Dr. Hedges, who was directing the treatment at that time, was of the opinion that in the cases where there was a small area of consolidation, with high temperature and severe cerebral symptoms, the continuous bath did good; in the cases where the lung lesion was the larger factor and the symptoms of intoxication not so marked, the baths failed to benefit; whether or no they did harm it would be hard to say.

In the cases that were benefited, temperature, pulse, respiration, and mental condition all showed the favorable influence in about equal measure.

Instead of a continuous bath, the routine administration of

* *Dict. encyclopéd. des sci. méd.*, 2me série, t. xxvi, p. 545.

sponge baths with ice-cold water has been tried in quite a number of cases. (Bath being given every four hours if temperature was 103° or over.) For it we can not say much. Usually it reduced the temperature and respiration; sometimes it did not. On the pulse the effect did not seem good. Usually the patients came out of such baths shivering, more or less cyanotic, and very miserable, so that they dreaded them and pleaded to have them stopped. Oftentimes the distress caused by the expectation and realization of the procedure was quite sufficient to neutralize any good effect which might have been obtained.

This year, so far as hydrotherapy is concerned, we have contented ourselves with the occasional administration of a sponge bath with water at 65°. Such a bath, continued for fifteen minutes, a patient who seems to be suffering from his fever usually enjoys and seems benefited by; but even such a bath we found was not desired very often during the course of the disease.

So far as drugs are concerned, we have rarely employed them for the reduction of the pneumonia temperature. Occasionally we have given a dose of phenacetine or phenocoll—rarely acetanilide. In the doses employed we never saw any distinctly bad effects from them, but their effect on the temperature was variable, often failing to effect it to any extent.

The Respiration.—The rapidity of respiration being regularly dependent on some other factor—the high temperature, feeble pulse, pleuritic pain, etc.—it was controlled by looking to the causative factor.

Pulse.—To this symptom our attention was naturally most given. A rapid pulse (over 100), with a sharply accentuated second sound over the pulmonary valves, such as is regularly heard in pneumonia, was regarded as a plain indication for some stimulation. This was given by means of nitroglycerin, whisky, and strychnine. The nitroglycerin would be begun in doses of gr. $\frac{1}{100}$ every two or three hours—sometimes by the mouth, preferably by hypodermic. Of whisky we would give half an ounce every three or four hours to begin with. Strychnine was employed in doses of gr. $\frac{1}{30}$ to $\frac{1}{20}$ every four hours.

As the disease progressed and the strain on the heart became more severe, showing itself in greater rapidity, less strength, and more or less cyanosis, the quantity of each of these drugs would be increased, the nitroglycerin especially being pushed. We would first make the administration more frequent—every two hours, then every hour; then the quantity would be increased to gr. $\frac{1}{30}$ or even $\frac{1}{25}$, the rapidity of the pulse, the sharpness of the second sound (pulmonic), and the cyanosis being the points of indication. In most of the cases gr. $\frac{1}{100}$ every hour was quite sufficient to meet all the indications, but the most signal result I can recall was obtained in a case where the temperature was running about 105°, the pulse about 130, the respiration from 48 to 58, and the patient being extremely cyanotic. Here the nitroglycerin was pushed steadily till gr. $\frac{1}{25}$ was given every hour for some time, with a relief shown in pulse, respiration, and cyanosis, which was gratifying to the highest degree.

In the same way we pushed the whisky to half an ounce to an ounce every two hours or every hour, and the strychnine to as much as a twentieth of a grain every two hours for a time. Of course, this heavy stimulation is not long continued, for the battle is usually soon decided one way or the other.

The good effects of this stimulation are commonly observed in a better color, easier respiration, and stronger pulse, although neither pulse nor respiration is slowed to any marked extent. With the improvement the second sound at the base usually becomes more natural (clear and not so sharp). Sometimes, of course, the sharpness of the sound disappears from progressing weakness of heart action, not from lessening of the peripheral tension and stronger heart action.

With the treatment outlined we do not often see the marked fall of respiration and pulse which are vaunted as the results attained by digitaline and aconitine, but we do see such relief in the severer symptoms as undoubtedly helps the patient to a final recovery.

Pain.—For this symptom we sometimes strap the chest—a measure which certainly often affords immediate relief, and has the rational advantage that it gives rest to the inflamed part.

Often we employ counter-irritation by mustard or hot flaxseed poultices. Frequently we give morphine in moderate doses by mouth or hypodermically, as the surest means of relieving pain and giving quiet rest.

Cough.—We have practically never used expectorants. Ammonium chloride has been employed a few times, but without any definite results. When the cough was very troublesome morphine was resorted to, just as for the pain. Oftentimes the hot poultices seem to afford marked relief from cough as well as pain.

Cerebral Symptoms.—These were treated really in the same way as the temperature, the acute cerebral symptoms almost always accompanying the high temperature, and being relieved when the temperature was reduced.

For insomnia and restlessness we again often resort to morphine.

REPORT FROM DR. D. McL. BARSTOW.

The treatment of pneumonia at the New York Hospital during the winters of 1892-'93 and 1893-'94 has been largely expectant. For the most part we have been content to treat the symptoms. Taking the more important of these in order, our treatment may be summed up briefly as follows:

Temperature.—We have used the tubs to some extent, but without much benefit. We use them in cases with hyperpyrexia—a temperature showing a tendency to stay above 105° F., and reaching 107° F. at times. As these cases, however, regularly die, we have not been able to convince ourselves that the tubs did any good. The temperature sometimes drops a degree or more, but whether this is due to the baths or to the regular up-and-down course of pneumonia temperature, I am unable to express an opinion.

We sometimes use sponge baths, but with a view rather to increasing the comfort of the patient than to reduce the temperature, which we have not found to come down under sponging more than a few tenths of a degree, and even this reduction is by no means constant.

In general, we do not regard a high temperature as a serious symptom, unless it be continuous. In the ordinary cases the temperature does not seem to influence the course of the disease.

Pulse.—This we regard as the most important and reliable index of the patient's condition. Where it is rapid, unless it be too feeble, we take it every hour, and administer a sixth of a milligramme of aconitine if the pulse be above 100°. The aconitine has not seemed to us to have any very marked antipyretic action, but it slows the pulse and reduces the arterial tension and seems to render the ordinary patient more comfortable. We have used the regular "trinity pill," but we do not like it as well as to give the drugs separately, and withdraw one or another as the patient's condition seems to indicate.

Strychnine we have found very valuable in many cases. It acts as a cardiac stimulant and is much safer than digitalis. In the bad cases, with œdema of the lungs, I have seen a patient do well under gr. $\frac{1}{30}$ by hypodermic every hour, kept up for twenty-four hours. In these cases we watch for increased reflexes, muscular twitchings, etc., as an indication for stopping the drug.

Carbonate of ammonia, in the bad cases, we use a good deal as an adjunct to the strychnine. I have seen patients recover from very bad conditions under its use in doses of five grains every two hours, alternating with strychnine gr. $\frac{1}{32}$, both by hypodermic. I have, however, seen hypodermic abscesses occur from its too profuse administration.

A somewhat less extensive use of nitroglycerin has led us to believe that it is a very valuable drug in the cases of œdema of the lungs. Its cardiac stimulation, combined with its dilatation of the arterial system, thus bleeding the veins into the arteries and easing up the work of the right heart, give it a high place in our opinion.

Whisky we have used very extensively. It seems to act as a food as well as a cardiac stimulant. It is perhaps most useful in the asthenic, poorly-nourished patients and in the alcoholic cases, where we give it almost as a matter of routine, in the dose of from three to eight ounces by mouth in twenty-four hours.

Dyspnoea and Cyanosis.—The treatment of these conditions depends, of course, upon the cause, so far as it can be ascertained, in each case. If it be due to the pleuritic pains, we adopt strapping the chest, poultices, and small doses of morphine. If it be due to cardiac weakness, we use the above-mentioned drugs. If to the large extent of lungs involved, we employ oxygen inhalations, which have seemed to me very useful in these cases. If the dyspnoea be due to congestion and œdema of the lungs, we employ dry cups, cardiac stimulants, and ligation of the extremities, three being tied off at once, and each one remaining tied for twenty minutes. Personally I have not much confidence in this last measure, although in a few cases it has seemed to give benefit in combination with other measures.

Sleeplessness.—Trional and morphine are our standbys in this condition—trional in the ordinary cases and morphine held in reserve. We never hesitate to give morphine unless the consolidation be *very extensive* in area, and even then we use it if necessary, and I have seen no bad effects from its use. Our usual dose is from a sixth to a third of a grain hypodermically. In the more violent alcoholic cases we have sometimes been forced to give hyoscyne hydrobromate, gr. $\frac{1}{16}$, by hypodermic. This, however, we never give except as a last resort.

Complications.—These are handled symptomatically and always carefully watched for. In case of a failure to defervesce, we look first for pleuritic effusion, which we have found quite constant, especially in the form of empyema.

REPORT OF DR. MARTIN, HOUSE PHYSICIAN, ST. LUKE'S HOSPITAL, NEW YORK.

During the last few years the treatment most generally followed at St. Luke's Hospital, in the uncomplicated cases of lobar pneumonia seen early in the disease, has been the administration of minute doses of aconitine, digitaline, and arseniate of strychnine.

The drugs are given in tablet form—of digitaline, an eighth of a milligramme; of aconitine, a sixth of a milligramme; of arseniate of strychnine, half a milligramme—every hour. The pulse is counted ever hour, and whenever it is below 100 to the minute the aconitine is omitted. If the pulse is slow enough, but too feeble, whisky is given at regular intervals.

By this method of treatment the pulse is usually made less frequent, and with the reduction of the pulse the patient is regularly made more comfortable, but neither the duration of the disease nor the mortality seems to have been altered.

[The Report of the Treatment of Croupous Pneumonia at the Roosevelt Hospital, New York, by Dr. Charles Norris, house physician, is omitted by request.—B. R.]

RABIES IN THE MOUSE,

TOGETHER WITH A
SIMPLIFIED EXPERIMENTAL METHOD FOR THE DETECTION OF RABIES.
*From the Pathological Laboratory, College of Physicians and Surgeons,
Baltimore.*

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It is often necessary to determine whether an animal has had rabies. It is especially important to decide this question when a suspected animal has bitten others or human beings. It is not proposed that any one should await the result of the experiment before resorting to treatment. But the demonstration has a scientific value in the compilation of statistics; moreover, if it prove the disease to be rabies, the wisdom of submitting to treatment is substantiated. If it is not, then there is no further source of anxiety. The method usually employed to determine this question is to trephine rabbits and inject some of the medulla of the suspected animal beneath the dura. This operation, though requiring but little skill, necessitates a number of instruments and appliances which the practitioner may not have; and rabbits are not always obtainable; when these animals are simply injected hypodermically the result is too frequently negative. These objections do not apply to the house mouse. It is very susceptible to the disease, exhibiting the signs markedly, the disorder and impairment of motility being very evident when this active little animal is so situated as to enable it to exercise freely. A small cage with a compartment opening into a light tin and wire bar wheel, so constructed as easily to revolve, affords it opportunity to display its agility. It delights in turning the wheel, which it does rapidly and with exact co-ordination, never missing to place the foot upon the bar. The onset of rabies is shown in the slower movement, in missing the bar, in thrusting the extremity between the bars, and stopping often to rest. From this condition the disease develops in the direction of quiet or of excited rabies. In the former the mouse tends to rest. If undisturbed, the disease is not evident, there being only a degree of tremor; but, forced to move, the usual inco-ordination becomes manifest. It attempts to revolve the wheel, frequently missing the bar. At a further stage it turns the wheel with its fore limbs, the hind ones extended motionless and dragged behind paralyzed. In the excited form there is a tendency to restlessness; slight disturbance causes it to stagger from one compartment to the other. It struggles to revolve the wheel, falling from side to side and over and over. Recovery even in this advanced stage is not impossible in the mouse. In the rabbit it has not been observed to occur when the symptoms have fully declared themselves.

So characteristic are the signs of this disease in the mouse that, except for the purpose of exhaustive demonstration, the transfer from mouse to rabbit is supererogative. It is readily transferable, as the cases cited in the table show.

The mice were injected in the subcutaneous tissue at

the root of the tail. A piece from the floor of the fourth ventricle of the medulla—two cubic millimetres—was rubbed up in one cubic centimetre of bouillon. Of this five minims were injected with an ordinary hypodermic syringe.

Tabulation in Detail.

No. of mouse.	Date injected.	First symptom noted.	Died of rabies.	Recovered.	Remarks.
1	Feb. 17.	Not noted.	9th day.	.....	Rabbits 117 and 118 trephined and affected with rabies.
2	Mar. 14.	8th day.	10th day.	.....	Rabbits 138, 139, and 140 trephined and affected with rabies.
3	Mar. 20.	7th day.	.....	Recovered.	
4	Mar. 20.	7th day.	.....	.....	Convalesced and relapsed; killed by accident March 30th; trephined rabbits 92 and 93, which became affected with rabies.
5	Apr. 3.	.....	.....	.....	Escaped.
6	Mar. 24.	11th day.	12th day.	.....	Rabbits 147 and 80 trephined and had rabies.
7	Mar. 24.	13th day.	14th day.	.....	
8	Mar. 24.	.....	.....	.....	Died April 8th, accidentally.
9	Mar. 24.	.....	.....	.....	Escaped.
10	Mar. 24.	.....	.....	.....	Died April 1st, accidentally; trephined rabbits 101, 102, and 103 did not contract rabies.
11	Mar. 24.	11th day.	14th day.	.....	
12	Mar. 24.	.....	.....	.....	Died March 26th, accidentally.
13	Mar. 26.	.....	.....	.....	Died March 28th, accidentally.
14	Mar. 29.	.....	.....	.....	Injected with medulla of hen; still living.
15	Mar. 30.	.....	.....	.....	Escaped; injected from medulla of mouse 4.
16	Apr. 2.	14th day.	17th day.	.....	Trephined rabbits 132 and 125.
17	Apr. 2.	.....	.....	.....	April 3d died; accidental death.
18	Apr. 2.	8th day.	9th day.	.....	
19	Apr. 3.	6th day.	7th day.	.....	
20	Apr. 9.	11th day.	14th day.	.....	
21	Apr. 16.	8th day.	10th day.	.....	
22	Apr. 16.	9th day.	11th day.	.....	
23	Apr. 23.	.....	.....	.....	Escaped.
24	Apr. 28.	.....	.....	.....	Injected with culture of man's medulla; still living.
25	Apr. 28.	.....	.....	.....	April 29th, accidental death.
26	Apr. 30.	11th day.	12th day.	.....	
27	Apr. 30.	11th day.	23d day.	.....	
28	May 6.	14th day.	17th day.	.....	
29	May 6.	8th day.	10th day.	.....	
30	May 6.	11th day.	12th day.	.....	
31	May 6.	9th day.	11th day.	.....	

In the return control experiments the medulla oblongata of the mouse was used to inject the trephined rabbits subdurally.

The source of the material in all cases except three was the medulla oblongata of rabid rabbits. These three exceptions which did not develop rabies were injected—one from the medulla oblongata of a rabid hen, one from the medulla of a rabid mouse, and one from a culture of medulla of a rabid man. Avian rabies is probably not transmissible to mammals, and cultures producing rabies are unknown; so that two of these cases must be classed with accidental deaths.

The total number of mice was 31.	
Accidental deaths.....	8
Regular rabies.....	17
Recovered.....	1
Convalesced and relapsed.....	1
Escaped the disease.....	4

Subtracting from the total accidental deaths reduces the number to 23, 19 of which took rabies. If this is a maintainable average, then 82 per cent. of mice take the disease when hypodermically injected.

As a control to these experiments seventeen rabbits were trephined from the medulla of the mice and all died of rabies. Of these, several are noteworthy.

Rabbit 147 was trephined and injected subdurally from the medulla of mouse 6 (which had been injected at the root of the tail hypodermically with the medulla of rabbit 121), and developed rabies on the ninth day.*

Rabbit 140, injected subdurally from mouse 2, developed rabies on the ninth day.

Rabbit 118, trephined from the medulla of mouse 1, had advanced rabies on the eleventh day; mouse 2, injected hypodermically from the medulla of this rabbit, developed rabies on the eighth day.

Rabbit 117, injected subdurally from the medulla oblongata of mouse No. 1, had advanced rabies on the eleventh day.

In conclusion, I may reiterate that in the mouse we have an animal which is easily experimented upon and in which the results are very pronounced and unmistakable. I therefore recommend highly the use of the mouse for the experimental determination of rabies.

ASPERGILLUS MYCOSIS

OF THE ANTRUM MAXILLARE.†

By JOHN N. MACKENZIE, M. D.,

BALTIMORE.

WHAT I have to say will rather be in the line of some preliminary remarks than in an attempt at a full presentation of the subject. The matter is still under observation, and at this stage no definite conclusions can be drawn. The patient whose history forms the basis of my remarks was a young woman, about thirty-five years of age, who was brought to me in the early part of last fall. I shall not give a complete history of the case, but simply call attention to a few salient points.

In 1863 she consulted Dr. Theobald on account of a pain in the right ear, which he said was as well marked a case of pure otalgia as one often sees. This, according to the note which he kindly wrote me, was the usual symptom which brought her to see him from time to time. Often there was nothing wrong to be seen in the ear, but at other times there would be some

* The material used was the thirteenth removed from the dog through the medulla oblongata of a horse which the dog had bitten. The virus at this remove had diminished the period of incubation from fifteen to nine days.

† Remarks made before the American Laryngological Association at its sixteenth annual congress.

swelling of the outer third of the meatus, and tenderness on pressure. On March 4, 1889, a threatening furuncle appeared in the auditory canal; in October, 1887, an abscess of the lobe of the ear was opened by Dr. Theobald. There never was at any time aspergillus in the ear, nor even a condition which would suggest the probability of its presence. Dr. Theobald first noticed a swelling on the right side of the face in January, 1889, and a week later recognized the presence of disease of the antrum, the patient having had a discharge of pus from the nose, with relief of pain and diminution of swelling of the cheek in the meantime. In February, 1891, he noted some swelling over the root of the nose, with pain over the right eye, and he feared that there was trouble beginning in the frontal sinuses. These symptoms disappeared later. Dr. Theobald was disposed to think that the disease in the antrum had something to do with the ear symptom, and perhaps was the chief cause of the otalgia which she had from time to time.

About two years ago her dentist brought her to Baltimore in consultation with Dr. James H. Harris, and, from the history which Dr. Harris got of her antral trouble, he seemed to think that it was due in the first instance to caries of a molar tooth, possibly originating in periodontal inflammation, with subsequent antral trouble. The antrum was opened at that time (the second molar tooth was extracted and the floor perforated by a large drill) and an immense amount of pus washed out with a syringe. She was seen subsequently by several general surgeons, who insisted upon scraping out the antrum. She was a little afraid of the operation and declined it. So things have been going on for the past two years, the antrum being syringed out daily with various alterative, astringent, and antiseptic solutions. The only drug which seemed to give her any relief at all was nitrate of silver in strong solution. This would stop the discharge for a week or two, and then it would become as bad as ever. About two months ago a new feature appeared in the case, which gives it its present peculiar interest. At that time she began to pass through the opening made in the antrum from the mouth shreds of false membrane which varied very much in length, some being as long as the index finger. These passed off at intervals of a few days to a week or ten days. This process went on in spite of nitrate of silver and strong applications to the interior of the antrum, and finally the case was seen by me in consultation with Dr. Harris and at once commanded my very great interest.

The chief point of interest was the passage of a false membrane from the antrum. We are taught that the antral mucous membrane is incapable of producing a false membrane. Zuckerkandl, who, of recent German authors, has most carefully studied the normal and pathological anatomy of the antrum, lays it down as a dictum that, owing to the anatomical structure of the antral mucous membrane, the presence of a diphtheritic or other membrane is utterly impossible. I obtained some of the membrane and sent it to Dr. Flexner, associate in pathology in the Johns Hopkins University, who prepared some sections. It consists of three layers. The first layer consists of a mass of round cells, with some loose epithelium of the mucous membrane of the sinus. The second layer is apparently one of pure necrosis, which does not stain. Upon this layer rests a mass of aspergilli. The variety of the aspergillus has not been determined. Dr. Flexner rather inclines to the belief that it is the *Aspergillus fumigatus*. The aspergillus sends its spores in two directions, off from the free surface and down into the deeper layers.

The subject of aspergillus infection is receiving some attention at the present day. There are three varieties that create most devastation—the niger, the flavus, and the fumigatus. From what I have read on the subject, more trouble follows in the wake of the fumigatus than in that of either of its brethren, the flavus or niger. The *Aspergillus niger* is familiar to us all as the parasite that infests the auditory canal, and also the eye, where it is found on the cornea. I have not gone sufficiently deep into the literature of the subject to warrant the assertion that this is the first case of aspergillus infection ever discovered in the antrum, but I never read of such a case, and I can state, from a tolerably fair familiarity with the literature, that very little is known about it, if such a case has ever even been reported. It is quite familiar as a disease of some birds, such as the dove and various other smaller birds. In them the *Aspergillus fumigatus* is found in the air-passages, and, according to some writers, it produces a pneumonia, with necrosis of the lung tissue. The aspergillus that does this harm is generally the fumigatus. I think experiment has shown that the *Aspergillus niger* is far less infectious than either the flavus or fumigatus.

An interesting point in this case is the mode of infection. I can find no evidence whatsoever that this patient has ever, at any period of her life, had a parasitic disease of the mouth or nasal passages. The probabilities are that the aspergillus reached the antrum through the mouth, but why it did not tarry in the mouth, but proceeded at once to the antrum, is very difficult to understand.

Another interesting point is this: The united testimony of all observers affirms that the aspergillus does not develop during the process of active suppuration, and yet here is a case in which the antrum has been for years the seat of a virulent suppurative process, not yielding to treatment, and these parasites have developed in large numbers. Another point in connection with these aspergilli is that they are readily formed in oily substances, and in all fatty substances which undergo rapid decomposition. As far as I can learn, no such substances were ever employed by the patient as a wash, and we can hardly assume that the aspergillus found its way into the antrum through the hands of the surgeon.

In this country we rarely see parasites in the nasal passages or in the accessory cavities. In India they are quite common. People who live in dirt and filth are apt to have them, and among our own negroes in the South the blue-bottle fly is a frequent visitor to the sad nostrils of the young African as he basks in the sun; they deposit their ova there, and these, finding a fertile soil, grow up into full-fledged maggots. The following is a copy of Dr. Flexner's report:

Dr. Mackenzie brought us in alcohol a piece of tissue having the appearance of a coiled-up false membrane. The thickness of the separate layers did not exceed three to four millimetres, and the membrane was found to be very friable. Sections made of the membrane which had been imbedded in celloidin showed on microscopical examination several layers. The undermost layer, corresponding with its attachment to the mucous membrane of the antrum, was composed of a layer of

polynuclear leucocytes. This varied in thickness in different parts and formed about one third of the entire thickness of the false membrane. A few cells of a different type, larger, with more protoplasm and vesicular nuclei, being sometimes flat and scalelike and again narrow, elongated, and columnar, were present in the layer of leucocytic aggregation. They were oftenest in the lower part of the membrane nearest the points of attachment to the mucous membrane of the antrum. These epithelial cells presented evidences of degeneration in the staining properties of the protoplasm as well as in the shriveled appearance and diffuse staining of the nuclei. Above the layer of leucocytes an indefinite substance was found, composed of granules and fiberlike processes which stained poorly in hæmatoxylin and eosine. But in the specimens stained in Weigert's fibrin stain this layer was seen to be felted and composed in large part of mycelia of a fungus. The uppermost layer of the membrane is composed of branches from the mycelia below, bearing on their summits the fruit-bearing heads. The fungus was recognized as belonging to the *aspergilli*, and Dr. Lotsy, who kindly examined the specimen, informs me that it is the *Aspergillus fumigatus*. The fruit-bearing heads were found only on the summit of the membrane in its most superficial parts, but in sections stained, as before mentioned, with Weigert's fibrin stain the mycelia were especially well shown, and these could be traced at intervals below into the deepest part of the membrane. No fibrin was made out in the membrane.

COLIC OF THE APPENDIX.

By J. HENRY CARSTENS, M. D.,

PROFESSOR OF OBSTETRICS AND CLINICAL GYNECOLOGY
IN THE DETROIT COLLEGE OF MEDICINE, ETC.

A GREAT deal is written about the diseases of the appendix, especially of catarrhal inflammations, and of ulceration and perforation of this useless organ. As I have never seen anything written about the appendix as a cause of colic, and as I have come across such a case, it seems to me worth while reporting, as I am sure, if attention is called to the subject and we look for it, we may comparatively often find obscure cases of colic which are due to something getting into the appendix which can not easily get out, and hence causes spasmodic contraction until it is expelled. It is due, I think, to an abnormal formation—that is, the opening from the intestine is comparatively small, while the appendix itself is large and baggy. Hence, if any faecal matter or seeds get into it, they are not so easily got out, but are generally expelled by a contraction of the appendix. This, of course, causes pain. (Fig. 1, case of J. N. K.)

In fact, I believe that in all cases of appendicitis which cause trouble this abnormal condition exists. In those cases where the opening is large, or larger than the body of the appendix—where it is, we might say, funnel-shaped—if anything should get into it (Fig. 2) it easily gets out; but where the opening is very small, if any little seed gets in there and can not readily get out, it naturally will swell and then certainly can not easily be expelled. This starts irritation and inflammation of the mucous membrane, which extends, and all the dire results of perforation ensue.

Still, in my experience, only a few cases of inflamma-

tion are caused by seeds (I had a case lately caused by an orange seed). The great majority are due to faecal matter which can not get out, and, containing the *Bacterium coli*

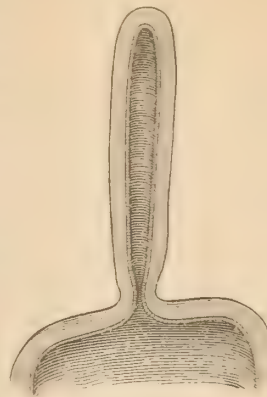


FIG. 1.

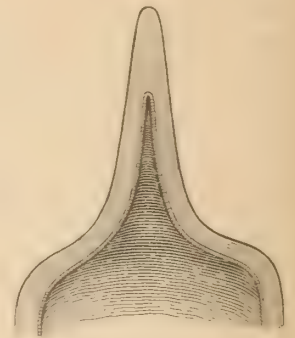


FIG. 2.

commune and other noxious germs, start up an inflammation of the mucous membrane. The resulting swelling of the mucous membrane still more decreases the size of the opening. Hence greater difficulty to expel the contents of the appendix, more irritation, inflammation, extension to the muscular and peritoneal coats, perforation, pus, sepsis, and death, which can only be stayed by a surgeon's hand.

My case is as follows:

Mr. John N. K., aged twenty-four years, by occupation an electrician, gives a good family history and has enjoyed good health with the exception of attacks of abdominal pain. When twelve years of age he was first taken with pain in the region of the cæcum. This would recur at intervals, and which was attributed by his uncle, who was a physician, to cold, or to carelessness in eating, as is frequently the case with boys.

These attacks would occur at intervals of several months, but have gradually increased in severity until two years and a half ago, when they became more frequent and very severe—so much so that he was obliged many a day to quit work and go home. The next day he would be all right, and in a day or two would have another attack. Sometimes the attacks would be so severe that he would have to lie on the floor, not being able to move until the severe pain would subside, and then he could slowly walk to the street cars and ride home. He noticed a distinct enlargement and bulging at the seat of the cæcum. The pain was limited to that locality and to the right side of the back.

He had tried many physicians and various forms of treatment without avail, and the attacks became so severe and frequent that he was unable to follow his occupation. He finally called on Dr. John G. Clarke, who diagnosticated "trouble of the appendix," and asked me to see him in consultation. I coincided with the views of Dr. Clarke that there might be some trouble of the appendix, or some band which caused constriction of the intestine, and as every possible form of treatment had been tried without avail, the only thing I could suggest was an exploratory cœliotomy.

To this he readily consented, and was taken to Grace Hospital and the operation performed April 1, 1894. It was an ideal case; the man was thin; no adipose tissue to contend with. Chloroform was used as an anæsthetic. The usual incision was made midway between the crest of the ileum and the umbilicus. As soon as the peritonæum was opened there was the cæcum, and on top of it was lying the vermiform appen-

dix, about three inches long, quite thick, but very constricted at its junction with the intestine. It flashed upon me at once that gas, fæces, or other substances would get into this appendix and then could not get out, and therefore cause the pain. I therefore removed the useless organ by resecting the peritoneal covering and then ligating the most constricted junction with the cæcum. It was then cut away, the mucous lining of the stump carefully scraped away, and the resected peritoneal covering carefully sewed over it with fine kangaroo tendon. Search was made for any other abnormal conditions of the abdominal organs, but nothing was found. The abdominal incision was closed with kangaroo tendon, sewing first the peritonæum and then the muscular layer, fascia, and skin, in tiers. The duration of the operation was just ten minutes. The patient made a fine recovery and has been free from pain since, which is a longer time—viz., four months—than he has been free from pain for two years, and I think it will continue so if our diagnosis and treatment were correct.

620 WOODWARD AVENUE.

GANGRENE OF THE VAGINA FROM TINCTURE OF CHLORIDE OF IRON.*

By CHARLES E. NAMMACK, M. D.,

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WHEN one recalls the multiplicity of medical journals nowadays, and the frequency of articles therein on the proper treatment of incomplete abortion, it would seem that the light of correct management of these cases would penetrate the minds of even those practitioners who have been for years accustomed to let "Nature take its course" in casting off retained products of conception, or to depend on the trusted ergot to expel them. Yet the number of poor women who apply at Gouverneur Hospital every year for treatment of hæmorrhage and septicæmia following incomplete abortion indicates that there is yet uncertainty in the minds of many as to the proper procedure in these cases, and that the use of the curette and intra-uterine irrigating tube will bear yet another advocacy. The method is simple and the results are satisfactory. As an example of the result of another plan of treatment, the case which forms the heading of this paper is herewith given:

Sophia K., Russian, thirty years old, six children, last one born two years ago. Menstruation then regular until eight months ago, when it ceased for four months. At the end of this time hæmorrhage and pains set in. After bleeding three months she consulted a physician, who tamponed the vagina with cotton saturated with tincture of chloride of iron, using in all four ounces of the tincture. She came to the hospital two days later complaining of pain, dysuria, inability to walk, and hæmorrhage. On examination, she was found to be markedly anæmic, with rapid, feeble pulse, and a temperature fluctuating between 100° and 104°, with chills. Locally, the whole vaginal mucous membrane, including that covering the vaginal portion of the uterus, was covered with thick, blackish sloughs. Douches and boroglyceride tampons were used, and the dead tissue removed as soon as possible. The underlying granulating surface was dusted with iodoform and the vagina packed with iodoform gauze. Later, the use of the vaginal glass plug will be necessary to prevent stenosis.

* Read before the Section in Obstetrics and Gynæcology of the New York Academy of Medicine, May 24, 1894.

Fortunately, the use of iron preparations to control uterine hæmorrhage is becoming obsolete, so that cases like the one here narrated are rare, and if this report will serve to enhance their rarity by pointing out a possible result of this practice, its recital may be justified. Garrigues (*Diseases of Women*, 1894, p. 343) refers to a case in which a tampon soaked in undiluted liquor ferri chloridi caused an exactly similar condition to that found in our patient. R. A. Murray (meeting of the Section in Obstetrics and Gynæcology, New York Academy of Medicine, April 23, 1891) said he had known undiluted persulphate of iron to cause cicatrices in the vagina, and advanced this as a possible cause of atresia of the vagina in a case reported at the same meeting by Dr. Malcolm McLean.

29 EAST TWENTY-FOURTH STREET.

AN ORIGINAL PLAN OF LOCATING THE URETERS TO PREVENT INJURY IN VAGINAL HYSTERECTOMY, BY KEEPING *IN SITU* URETER CATHETERS DURING THE OPERATION.

By J. SINKLER IRVINE, M. D.,

EVINGTON, VA.

In vaginal hysterectomy injury to the ureters can be prevented by introducing a ureter catheter or sound (Kelly's) into each of the ureters, and keeping it there during the operation. This enables the surgeon to locate the ureter *easily* at all stages of the operation, so as to prevent cutting the ureter or getting it in the ligature or the bite of the clamp. While the sound or catheter is in the ureter it is impossible for the operator to include the ureter in the stump. "The dangers of vaginal hysterectomy," says an American text-book of gynæcology, "are sepsis, hæmorrhage, vesico-vaginal fistula, and injury to the ureters by the clamp or ligature. . . . Therefore, that surgeon who carefully avoids these dangers will, in the long run, be the most successful." It will be seen from this that injury to the ureters is put down as one of the chief dangers. The unfortunate accident of catching one of the ureters in the clamp or ligature, which has repeatedly happened, is always fatal. For full directions as to sounding and catheterizing the ureters in diseases of the kidneys, etc., I mention the writings of Pawlik, the pioneer in this work, and Professor Kelly, of the Johns Hopkins Hospital, Baltimore. So far as I have been able to read, this plan of using the ureter catheter or sound in vaginal hysterectomy, so as to locate and avoid injury to the ureter by either the clamp or ligature, is original with Dr. Alexander Irvine.

A Convenient Mode of Administering Quinine.—For the ready administration of quinine to children, Bond (*Virginia Medical Monthly*, vol. xxi, No. 4, p. 343) recommends that the drug be made into pill form with dilute acid, preferably aromatic sulphuric. The pills are crushed and mixed with a little brown sugar, placed upon the tongue dry, and washed down with a glass of water. Sweet chocolate may be used instead of sugar; or the pill may be preceded and followed by the use of licorice root. The same principle of procedure may, of course, be employed with other drugs to be administered to children.—*Medical News*.

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PHARMACEUTICAL APOTHECARIES.

IN No. 41 of the *Asclepiad* Sir Benjamin Ward Richardson discusses under this heading the matter of counter prescribing, for his tolerance of which he has lately incurred criticism. He says he does not for a moment think that every man who has a counter should prescribe over it; on the contrary, no man should be allowed a counter until he is capable of prescribing in a manner truly useful to the public and creditable to himself. The author submits an idea simply as a suggestion worthy of consideration, without prejudice, as a possible practical solution of a most embarrassing difficulty.

If any one goes into an apothecary's shop and asks in regard to a pill, "Will it purge?" the apothecary is obliged to answer, says Sir Benjamin, and in so doing he is illegally trespassing on medical pastures, and would be open to trial. No man can sell drugs without subjecting himself to inquiries about what he is selling, and he would not be considered competent to sell unless he knew something of the properties of the article he sold; and the moment a druggist shows such knowledge he technically breaks the law. He can not even do really useful acts bearing on treatment, however small they may be, without breaking the law. The author relates the following instance: A physician was seized one day with copious epistaxis and could find no aid except in an apothecary's shop. He became so faint on arriving there that he could give no instructions, and the apothecary therefore took the initiative; he syringed out the bleeding nostril with hot water and then plugged it firmly with cotton wool saturated with perchloride of iron. The hæmorrhage was stanching, and the physician was as well treated, he said, as if a surgeon had done it for him. The apothecary broke the law, however, but neither the man whom he had assisted nor a medical defense association had the temerity to touch him. If action had been taken, it would have been worse than thrown away, not because the present law is bad, but because the act it might have punished was a necessity.

The safety of counter practice, the author goes on to say, lies in this necessity, for which reason some pharmacists wish for no change. They are not obliged to undergo any special examination for practice, and they save many fees that would otherwise be wanted for preliminary studies, examinations, etc. They can do as much prescribing as they desire, and the amount of practice they do under this negative protection is incredible. Overstocked medicine is bringing itself, under the pressures of life, to the practice of the pharmacist who has not the requisite qualifications

to fit him for the post. It is this state of things, says the author, which he wants to remedy. His proposition is that the man who takes upon himself to meet the minor or pharmaceutical practice should not be allowed to prescribe until he is legally qualified for the duty. He should be registered as a "chemist" and as a druggist, and his place of business should also be registered. In order to be qualified, he should be obliged to pass through a proper curriculum including a sufficient amount of hospital practice, and he should pass an examination conducted by a competent board composed of members from the Apothecaries' Society and the Pharmaceutical Society. Such would be the qualification. His privileges would not be greater than are at present given by the law of necessity; he would not be empowered to do anything that encroached on medicine beyond what he has always done, but he would do this in a qualified manner under the protection of the law.

Another reason that calls for the change is the fact that the men who are engaged in pharmaceutical work are becoming aggressive therapeutists and send out letters, cards, brochures, and bottled or boxed specimens of some new remedy which some medically unqualified chemist has brought out. The influence of the pharmacist in this direction is becoming very great and is extending very rapidly, and it affects the public so favorably that it is to the interest of every apothecary to have his own special remedy for some kind of disease at least. This, says the author, is far more dangerous than any counter prescribing, and is too serious to be allowed to develop as it is now developing. Under proper control it might be useful, and the only way to do it is to legalize the management of it. The representatives of the pharmaceutical class would feel themselves to be professional men; they would see before them the means to reach the highest branches of their profession, and they would come willingly under medical rule and etiquette. The effect on the general practitioners would be to lessen their numbers without reducing their efficiency. Competitions for minor duties would cease, and those who were engaged in general practice would stand in a higher social sphere. The work of all classes would, in this way, be equalized. The irksome duties of dispensary and hospital out-patient practice would, the author thinks, pass into the hands of the pharmacist, who would realize the large profits that ought to follow competent advice, but are now lost to the profession, except in the instances where qualified men imitate the apothecaries and open dispensaries on their own account. Hospital practice would be perhaps entirely limited to indoor practice under the directions of clinical professors, and hospital skill would be confined to serious cases, and would not extend to patients who, requiring casual treatment, now find it by seeking unqualified advice promptly and at a moderate cost. With regard both to the public and to the profession, the plan would be infinitely preferable to the mixed system of irregular counter practice, cheap dispensary practice, overcrowded outdoor hospital practice and gratuitous home practice, which at the

present time prevail in such an uncertain and unsatisfactory degree.

This question, says the author, has been treated purely from the professional side, from a self-interested point of view; but there is more than self-interest in it; there is the public interest in relation to the suppression of disease. There is no doubt, says Sir Benjamin, that if the plan proposed were carried out, it would lead to a reduction of disease. It would meet it properly and scientifically in its earliest stages, and prevent it there. In serious cases the patients would pass naturally from the qualified hands of one man into those of another of higher qualifications without explanations of excuse or apology. In urgent cases, if the patient was rich, he would be recommended to seek the advice of a physician or surgeon, or if poor, he would be recommended to the Hospital.

Give the pharmacist, by a higher and better qualification, the means to cross the barrier that separates him from medicine proper, and on neutral ground he might meet the practitioner, for the moment, on the most cordial terms. There would be no need, no expectation, of any further consultation when the preliminary act of transfer was over, but there would be continued confidence and good feeling on both sides.

We know too little of the relations between medical practitioners and apothecaries in the United Kingdom to be able to form a just estimate of Sir Benjamin's ideas on this subject, but we feel quite sure that the American apothecary feels no well-founded desire to have his sphere enlarged, and that the American physician is convinced that his is already restricted enough.

PROFESSIONAL SECRECY.

WE have often remarked upon the care that physicians should exercise not to expose matters confided to them by patients or ascertained by them in regard to patients in the course of their professional work. We are convinced that the sacredness of the relation between physician and patient is fully appreciated by the great mass of the medical profession, and that it is exceedingly rare for it to be violated knowingly; still, it is violated inadvertently, so to speak, far too often, chiefly by the mention of patients' names or of some circumstance by which their personality can be identified, in histories of cases furnished for publication.

Two publications here in New York since our last issue was made up have called this matter to mind anew. In one of them a distinguished New York physician had reported a case, giving the patient's first name and middle name in full and the initial letter of his surname, together with the year of his birth; and added the following: "Previous to his birth, a miscarriage and stillbirth. Mother had albuminuria every time [syphilis?]." Thereupon he received from the child's father a letter demanding an explanation and insisting upon the immediate publication of a correction. Therefore, in the *Medical Record* for August 18th, the physician says: "I courteously offer the following 'explanation' of my 'syphilis with interrogation mark in brackets,' viz.: Successive miscarriages, to a certain extent also

persistent albuminuria and excessive bone proliferation resulting from an irritative nutritive process, suggest the presence of syphilis in a late form. They do not prove it, unless there be corroboration by the history or physical examination of the parents (mostly the father) or the wet-nurse. The interrogation mark means: No certainty at all; at all events justifiable doubt. The 'correction' is that 'there was no such intimation whatever in Dr. —'s report'; that the father strenuously denies syphilis, and that, therefore, the cause of the poor baby's abnormal, both physical and mental, condition is not explained." This frank acknowledgment is most creditable to the physician, who, there can be no doubt, gave the patient's name simply by inadvertence.

The other publication that we have in mind is in the shape of a letter to the editor of one of the newspapers in regard to a matter that has stirred up some public discussion, needlessly we think, as to the alleged danger of communicating infectious diseases by the communion cup. In the course of the letter the writer says: "The last time I knelt at the communion altar of the Episcopal church there knelt at one side of me a patient whom I knew, as I was treating him at the time, to be a syphilitic." Inasmuch as this letter to the newspaper is signed with the physician's full name, we must assume that neither the clergyman who officiated at this particular celebration nor any one of the communicants can have been personally acquainted with the writer; otherwise he might be able, if he remembered the occurrence, to identify the alleged syphilitic person. To make such statements as this in a public print in the absence of such a safeguard as we presume the correspondent in this instance to have relied upon would be an act that we are sure neither the writer of the letter in question nor any other reputable physician would knowingly commit.

MINOR PARAGRAPHS.

A CASE OF NUMEROUS CONCRETIONS IN THE BLADDER.

IN the *Journal des praticiens* for August 8th Dr. Desnos and Dr. Prédal give the history of a case in which 474 calculi, round, varying in size from that of a millet seed to that of a large pea, formed by a nucleus of uric acid covered with a whitish phosphatic deposit, were removed from a man's bladder by syringing through a catheter, without crushing. The removal was accomplished in four sittings four or five days apart.

THE LATE M. RICORD'S VALET.

THE *Progrès médical* contrasts the poor estate of many a struggling practitioner of medicine with that of the old valet of the late M. Ricord, who amassed a snug fortune by putting by the fees he received from patients for precedence in access to his master's consulting room. The reflection is called up by the fact that recently a piece of property belonging to the valet was appraised at 600,000 francs.

GLYCERIN IN THE TREATMENT OF COUGHS.

THE *Medical Reporter*, of Calcutta, says that in severe paroxysms of coughing, from whatever cause, a tablespoonful of glycerin, in hot milk or cream, will give speedy relief. If

any of our readers are disposed to try it, we would caution them that the dose of glycerin seems rather large, especially as nothing is said about the patient's age or the frequency of its repetition.

CREOLIN IN INFANTILE DIARRHOEA.

THE *Mercredi médical* attributes to Dr. Schwing the following formula: Creolin, two or three drops; cinnamon-water, three fluidounces; syrup, one ounce. A teaspoonful is to be given every hour.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending August 21, 1894:

DISEASES.	Week ending Aug. 14.		Week ending Aug. 21.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	37	4	24	8
Scarlet fever.....	30	7	20	1
Cerebro-spinal meningitis....	0	0	0	0
Measles.....	22	2	27	1
Diphtheria.....	123	35	109	26
Small-pox.....	2	1	2	0
Tuberculosis.....	100	90	101	106

The Late Dr. George E. Fenwick, of Montreal.—In an obituary notice of Dr. Fenwick the *Montreal Medical Journal* says that it is with the profoundest feelings of sorrow and regret that it has to record the death of Dr. George E. Fenwick, which took place on the 26th of June. He was born in Quebec in 1825, and was graduated from the McGill University in 1847. For many years, says the *Journal*, he had been a prominent figure in the medical world of Canada, and his reputation as a bold, skillful, and scientific surgeon was not confined to that country alone. He held many important positions, and for twenty-five years he was connected with the teaching staff of McGill University, where he left an honorable record which will not soon be effaced. He was a man of strong personality, and his sympathetic manner, his willingness to place his knowledge and skill at the service of his younger brethren, his charity for error, and his modesty and genuineness endeared him to all his associates, both young and old.

The Death of Dr. Philip Lonsdale, of the Navy, is announced as having occurred in Greenwich, Conn., on Tuesday, the 21st inst. Dr. Lonsdale was seventy-seven years old, and had served in the navy for nearly half a century.

Change of Address.—Dr. Jack Killen (Binghamton, N. Y.), to No. 76 Front Street.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending August 18, 1894:*

KERSHNER, EDWARD, Medical Inspector. Ordered as Fleet Surgeon to the North Atlantic Station.

HENEBERGER, L. G., Surgeon. Ordered to the Marine Rendezvous, New York.

DRAKE, N. H., Surgeon. Detached from the Marine Rendezvous, New York, and ordered to the Receiving-ship Franklin.

MACKIE, B. S., Surgeon. Detached from the Receiving-ship Franklin and ordered as Fleet Surgeon to the European Station.

KINDLEBERGER, C. P., Assistant Surgeon. Ordered to the Naval Laboratory and Department of Instruction.

PENROSE, T. N., Medical Inspector. Detached from the Norfolk Hospital and ordered to special duty connected with repairing and renovating the New York Naval Hospital.

CLEBORNE, C. J., Medical Director. Detached from the Naval Hospital, Chelsea, and ordered to the Naval Hospital, Norfolk.

HOEHLING, A. A., Medical Director. Detached from special duty at Washington and ordered to the Naval Hospital, Chelsea.

KIDDER, B. H., Medical Director. Ordered to report to the chairman of the Senate Committee investigating the Ford Theater disaster.

Letters to the Editor.

EARLY AMERICAN SYMPHYSIOTOMIES.

PHILADELPHIA, August 13, 1894.

To the Editor of the *New York Medical Journal*:

SIR: I wish to correct an error that is going the round of the medical journals of the United States, taken from the *Transactions of the Obstetrical Society of Philadelphia*, before which I gave credit to Dr. William Thomas Coggin, of Athens, Ga., for having performed "the first symphysiotomy in the United States." When I did this I was not aware of the fact that three unreported cases belonged to the years 1880, 1884, and 1889. The operations of 1884 and 1889 are not taken on the word of the operator, as in the Coggin case and forty-seven others, but have been sworn to before courts and sealed with the court seals—in one instance by the patient herself and in the other by one who saw the operation. I have every reason to believe that this operation dates back to April, 1880. In due time the three cases will be reported. As the operations were declared fictitious by several good men, we have taken special pains to satisfy them that they were actually performed as alleged. If Coggin made up his case, as did Pilate and Acher, of Louisiana, with their Casarean sections, in 1860 and 1878-'79, I have only to persevere until the truth is brought to light. Pilate was generally credited with his case, but nineteen months' search gave it to Boagni. The Jewett operation can not be earlier than the fourth.

ROBERT P. HARRIS, M. D.

Proceedings of Societies.

SOCIETY OF ALUMNI OF BELLEVUE HOSPITAL.

Meeting of May 2, 1894.

The President, Dr. FREDERICK HOLME WIGGIN, in the Chair.

(Concluded from page 185.)

The Early Diagnosis and Treatment of Asiatic Cholera, with Report of Twenty-one Cases.—Dr. J. M. BYRON read a paper with this title.

Dr. HERMAN M. BIGGS said that he had only had personal experience with the bacteriological diagnosis of cholera. He thought it was now generally accepted that there was only one means of making the diagnosis in doubtful cases, and that was by bacteriological examination. His first experience in cholera examinations had been in 1887, when the first of the modern epidemics of cholera had occurred at Quarantine. The first case examined had been on the steamer *Alesia*, which had come

from an infected port, and had arrived with apparently a clean bill of health. There had been previously another steamer with a number of cases of undoubted cholera. After the arrival of the *Alesia* he had been asked by the health officer to perform an autopsy on a man who had died shortly after his removal from the steamer. The clinical history had not been that of Asiatic cholera, and the autopsy had shown that the cause of death had been acute lobar pneumonia. The steamer had been about to be discharged when a child, five years of age, had been found to be suffering with what had been diagnosticated as cholera infantum. The child had been removed from the steamer and a few hours later had died. An autopsy had been made on this child and tubes inoculated from the intestinal contents, and on the following day, on microscopical examination, he had found a large number of spirilla, which in their morphological characteristics had corresponded with those of the cholera spirillum. After considerable persuasion, the health officer had promised to hold the steamer for forty-eight hours until pure cultures could be made. Independent examinations had been made by the speaker and, at his request, by Dr. Prudden and Dr. Weeks, and at the end of forty-eight hours all three had arrived at the diagnosis of Asiatic cholera. The patients had then been removed from the steamer. Six or eight cases of cholera had afterward developed from them. In a week after their discharge from quarantine a case had been reported to the health department as Asiatic cholera by two very competent physicians in the upper part of the city. The man was an Italian grocer who had been supplying groceries to the Italians working on the aqueduct. Anatomically, it had been as characteristic a case of Asiatic cholera as the speaker had ever seen, but on bacteriological examination only pure cultures of the ordinary colon bacillus had been found. The clinical history had been that of cholera—the man had died after an illness of only sixteen hours. The second group of cases in which bacteriological examinations had been used for diagnosis had been in the outbreak of 1892 in this city. A large number of cases had been examined, and twelve had proved to be Asiatic cholera. The utility of this method of diagnosis had been shown again in a most striking way. Last year he had examined one of a number of persons who had died in Jersey City under suspicious circumstances. This case had proved to be Asiatic cholera.

The bacteriological diagnosis of cholera under ordinary circumstances was fairly easy; any one with some training in bacteriological work could make the diagnosis in favorable cases. In some instances where the organisms were very few, as in the later stages of the disease, and when they were mixed with many other organisms, it was sometimes a rather difficult matter, and might require four or five days. He quite agreed with the reader of the paper as to the lack of pathognomonic anatomical lesions, but he would lay more stress upon the diagnostic value of some of the anatomical appearances. He had seen about fifteen autopsies in cases of Asiatic cholera, and in all of these he had been deeply impressed with the general appearance of the body—the extremities had been shriveled and cyanosed, and there had been usually a very marked cyanosis on the posterior surface of the body. There had also been contraction of the flexor muscles, and very marked rigor mortis. On opening the abdominal cavity, there had always been a peculiar rosy hue to the intestinal coils, and a lack of bile-staining of the intestinal contents. These features constituted a very striking picture which seemed to make it possible to distinguish these cases of cholera from all others, excepting a rare type of acute cholera morbus, which might occur in the adult with practically the same clinical history, and in which we might find practically the same lesions post mortem. These cases were, however, extremely rare, for in a large autopsy experience he had only

seen three of them. In these, both the clinical history and the anatomical lesions had been those of Asiatic cholera, but the intestines had not contained the spirilla. He had had absolutely no experience in the treatment of cholera, but he had been much impressed with the statistics presented by the author of the paper as to the mortality. In this connection the question naturally arose, Were these cases reported in the paper as severe as the average cholera cases in a severe epidemic?

Dr. STEPHEN SMITH said that he had been attending a conference called for the purpose of securing international regulations which would prevent the cholera infection from being transported from India by pilgrims to Mecca, and thence to Europe. This had been the seventh conference of this kind—the first one had been held in Paris in 1851. They had not succeeded until quite recently in securing international co-operation. The prevalent idea now among bacteriologists regarding the specific nature of the germs had not been accepted by all the nationalities represented at this conference. He believed it had not yet been entirely accepted by the French, and the delegate from India had discarded it altogether, believing that the disease depended upon meteorological conditions, and hence that the more it was interfered with the more likely it was to become epidemic. Two methods of dealing with cholera were advocated—viz., (1) the French delegation proposed to prevent cholera from leaving India, and, if the infection succeeded in escaping, to raise every possible barrier against its progress; (2) the British delegation to put no restrictions upon the spread of cholera, but depend upon the local sanitation of the homes of the people. The speaker scarcely need say that the last policy had no other supporters than the delegation which had advanced it.

The conference had consisted of three delegates from each of the nations of Europe and Asia, except China, the first delegate being a diplomat, the others technical delegates—viz., physicians, sanitarians, etc.

The result of the conference had been the adoption of a series of rules and regulations having really the effect of laws, directed chiefly against the pilgrims coming to Mecca and the holy places in the East. Beginning at their homes, they were to have sanitary supervision all the way on their pilgrimage, and on their return to their homes again. The pilgrim had, in the first place, to declare to a local authority his intention of going on a pilgrimage. He must have the means to travel in good circumstances the whole distance and return, and provide for the proper care of his family while he was absent from home. If the pilgrim was thus provided, he was given a sanitary passport. Heretofore many of the poor and sick had undertaken these pilgrimages, and sixty per cent. had died *en route*. The pilgrim was now to be allowed to take but very little baggage, and only such as could easily be cleansed and disinfected. The pilgrims going to Mecca were divided into three classes—viz., those going by the Red Sea, those going by the Persian Gulf, and those going by caravans or overland. When the pilgrims by the way of Bombay reached the port of embarkation, they must remain there five days and be bathed, and have their clothing cleansed and disinfected. Then, if there was no sickness, they were to be allowed to embark. They were to travel on special pilgrim ships, which were to be provided with competent medical attendants and nurses, and special care was to be taken to provide an abundance of fresh air and of pure drinking-water, together with means of isolating the sick. The same process of cleansing was to be repeated at the island of Aden, and again at Cammaran and Djedah, the port of Mecca. Mecca was to be put in complete sanitary condition and under sanitary government. While there the pilgrims were to be kept under constant sanitary surveillance. The same general regu-

lations were to govern the pilgrims going from Europe and Western Asia to the Red Sea.

In enforcing these rules and regulations there was now an international arrangement. A commission was to be formed consisting of one member from each State which had agreed to the conclusions of the conference. This commission would be located at Constantinople. The code of regulations had been very minute and thorough, and if carried out in good faith, would probably prevent cholera making any progress out of India.

Dr. BYRON said that he had not mentioned all the symptoms and signs ordinarily laid down in the books, but he had referred especially to those not insisted upon, or those that were insisted upon but were of no value. He had called attention to the condition of the large intestine because he had found it the most constant. The rigor mortis, the cyanosis of the extremities, and the shriveling of the skin had not been constant. The contraction of the muscles was often seen in lean people who had died of other diseases. A bacteriological examination was to him the only means at our disposal at present of making a positive diagnosis.

The last epidemic had not been so severe as the preceding one, yet out of twenty-one patients nineteen had been in collapse, showing a fair degree of severity. The great success of the treatment had been doubtless attributable in part to the fact that most of them had come under treatment at an early stage. In the epidemic of 1892 the mortality had been twenty-six per cent., and the mortality of the epidemics of 1892 and 1893 in the lower Quarantine had been considerably less than that in Europe. This had probably been due to the fact that on the quarantine island they had had absolute control of the patients; they had been watched closely and constantly, and as soon as any suspicious symptoms had been observed they had been compelled to submit at once to the treatment.

The idea of quarantining India was not new; he believed it had been proposed many years ago. At one time Pettenkofer had been the greatest opponent of the bacillary theory of cholera, but he now admitted the main points at issue. The comma bacillus, it was true, would not give the disease to a person whose cells had sufficient vitality to resist its action. Observers all over the world had found the comma bacillus in connection with Asiatic cholera, and M. Peter, in France, and his followers, were the only ones who now absolutely denied the relationship between the comma bacillus and cholera. That the bacillus was a constant factor in the vast majority of cases of the disease was an undoubted fact; whether or not it was the direct cause of Asiatic cholera was a matter yet to be determined.

The cholera bacillus seemed to have left India and taken up its abode in other countries. In 1892 the epidemic of Nanterre, a suburb of Paris, could not be traced to any outside infection, but in the asylum at that place there had been previously some cases of Asiatic cholera. From here the disease had apparently spread to Havre, then to Hamburg, and then to this country. In 1884 all the drinking-water wells in Naples had been closed because a company had laid water conduits. In 1893, in the lowest part of the city of Naples, some of these wells had been reopened without the consent of the municipality, and cholera had appeared in just that portion of the city. Naples had very little if any commerce with India, and he thought it highly improbable that these cases had been due to outside infection. There appeared to be always a strong tendency to trace all these epidemics to India.

Recently experiments with drinking-water in certain places had shown germs very closely resembling the bacillus of Asiatic cholera. Pettenkofer and his assistants, it was well known,

had swallowed virulent cultures of the comma bacillus, and only one of his assistants had been sick, and then only with a slight diarrhœa. In his opinion, while quarantine of India might be helpful, the most important step was to secure good sanitation and a rational quarantine at home.

Meeting of June 6, 1894.

The President, Dr. FREDERICK HOLME WIGGIN, in the Chair.

Popliteal Aneurysm Cured by Digital Pressure.—Dr. STEWART presented on behalf of Dr. Frederic S. Dennis a report of the following cases: The patient, who was thirty-two years of age, had not been a hard drinker; he had had gonorrhœa about five years ago and about the same time had had a single large sore on the penis, which had been cured in about six weeks. There had been no after-symptoms. About a year ago he had begun to have shortness of breath and pain around the heart. The first attack had lasted for about five days. Sixteen years ago he had fallen into the hold of a ship, and had injured the right hand and shoulder. Soon after he had fallen again, striking on his face. Twelve years ago he had strained himself lifting a sack of wheat. Following this it was said that he had noticed a wheezing sound in his chest, which had lasted for five years and had then disappeared. Early in June, 1893, he had noticed a pain in his right knee. After two months he had sought medical advice, and had been at that time treated for rheumatism. After a while it had been discovered that he had a popliteal aneurysm. He had then been taken to the Homœopathic Hospital, and had been unsuccessfully treated by digital pressure made with an Esmarch bandage. Shortly afterward he had been sent to Dr. Dennis by Dr. Perry, and had been taken to Bellevue Hospital. On admission a double mitral and a double aortic murmur had been detected. The treatment in the hospital had been by digital compression of the femoral artery, continued from 3.30 P. M. to midnight December 21st, after which a rolled bandage had been applied over the femoral, and held down with a bandage and tourniquet. These had had to be readjusted several times during the night to relieve the pain at the site of operation. On December 22d, about 10 A. M., the compression of the tourniquet had been removed, and the aneurysmal sac had been found to be obliterated. Examination had shown a hard lump without expansive pulsation. The after-treatment had consisted of rest in bed and bandaging the limb, the leg being held by bandages in a flexed position. This treatment had been continued for about two weeks. On January 11th he had been discharged from the hospital "cured."

Intestinal Anastomosis by the Murphy Button.—The second case was that of a man, thirty-one years of age, whose family history as regards the case was negative. About twelve years ago he had noticed a small tumor in the right groin, which had appeared two days after lifting some heavy weight. The tumor had steadily increased in size for about one year, at the end of which time it had descended into the scrotum, and could be reduced. For the next seven years he had had an easily reducible hernia, but for the past five years he had been unable to return the hernia completely into the abdomen.

Two days previous to his admission to Bellevue Hospital, the tumor had become suddenly very much enlarged and quite painful, with vomiting. On October 25, 1893, he had been admitted to the hospital, and had been operated upon for strangulated inguinal hernia by Dr. Sayre. The operation had revealed an hour-glass shaped sac, and the point of stricture had been found to be not at either ring but down in the sac, and a portion of the intestine below the constriction was gangrenous. An artificial anus had been established, and the wound dressed and treated in the usual way.

On April 7, 1894, Dr. Dennis had performed intestinal anastomosis with the aid of the Murphy button. At that time the two ends of the intestine had protruded from the abdominal walls surrounded by cicatricial tissue, and in a line parallel with and not far above Poupart's ligament. The proximal end of the intestine had been the lower one through which fæces passed. After the end of the gut had been thoroughly cleansed with bichloride solution, and the lumen plugged with a sponge tied to a silken thread, the cicatricial tissue above and below the protruding ends of the bowel had been divided and dissected out till these two ends of the bowel could be brought out entirely free of cicatricial tissue and entirely free from peritonæum. The proximal end having been freed, one portion of the button had been tied into it in the usual way, by a purse-string suture which had been passed in and out around the bowel, and the ends tucked down. The distal end had been treated in exactly the same way. The mesentery, which had been thickened at its attachment to the bowel, had been excised, and the triangular space sutured, so that the two portions of the bowel had been brought together. The portion of intestine protruding had been the ileum. The wound had been closed with interrupted silk sutures, and an antiseptic dressing applied. The operation had been done on April 7th. On April 12th it had been noted that the patient had been very comfortable since the operation, and had only experienced a little pain over the seat of the wound. On that day some of the stitches had been removed from the upper end of the wound. It had proved difficult to close the abdominal wall, on account of the cicatricial tissue, and for this reason the wound had necessarily been made quite large. On removing the stitches some pus had been found in the wound, and consequently a drainage-tube had been allowed to remain in, but had been considerably shortened. On April 13th there had been a copious movement of the bowels, and another on the 15th. On the 16th, what had appeared to be a fæcal fistula had developed at the lower angle of the wound. On April 29th the patient had the fourth movement from the lower bowel since the operation, and passed the button—that was to say on the twenty-second day. A sinus had continued to discharge since April 16th. Flatus had been discharged from the lower bowel for some time previous to the passage of the button. On May 3d the sinus had closed, and on May 5th the patient had been discharged from the hospital "cured."

Perforation of the Intestine and Fatal Peritonitis.—Dr. STEWART also reported a case of this kind. The patient, who had been kicked by a horse, had been admitted to the hospital on March 31st. He had vomited once since the accident, and at the time of his admission had had one movement from the bowel. The abdomen had been tympanitic and somewhat rigid. There had been some tenderness at "McBurney's point." He had been kept in bed and turpentine stupes applied to the abdomen. On April 1st the tympanites had increased, but there had been but very little pain over the abdomen. On April 2d nutritive enemata had been given but had not been entirely retained. About 2 P. M. on April 3d there had been a partial collapse, and he had died at 11.30 P. M. The autopsy had revealed the presence of about thirty perforations of the bowel, with extensive peritonitis and agglutination of the intestine. On the first day the temperature had been 101° and the pulse 96; on the second, 100° to 102° with a pulse of 108; on the third day, the temperature had remained below 100° and the pulse had varied from 108 to 106; on the fourth day, the temperature had first been 101° and the pulse 120, but shortly before death it had risen to 103·8°.

Ophthalmic Suggestions for the General Practitioner.—Dr. RICHARD KALISH read a paper with this title.

Book Notices.

Die causale Behandlung der Tuberculose. Experimentelle und klinische Studien. Von EDWIN KLEBS. Hamburg und Leipzig: Leopold Voss, 1894.

Now that four years have elapsed since the announcement of Professor Koch's original method of treating tubercular diseases by the subcutaneous injection of a substance the composition of which was somewhat mysteriously withheld from the profession, but which turned out to be a bacillary mixture, used with the idea of securing immunity as well as destruction of existing deposits, it is of great interest to have from so able an authority as Klebs an account of thorough, exhaustive experiments and careful clinical observations, free from the influence of the glamour attaching to the remarkable manner in which the treatment was, as it were, sprung upon the world.

The author's name has been so long connected with the science of bacteriology in the minds of all students of medicine, and his reputation as an exact and reliable observer is so firmly established, that the full record of his labors in this field will be received with great interest, sure as it is of receiving the respect due to so distinguished an investigator.

It is impossible, in the space at our command, to do more than briefly indicate Klebs's position as to the subject of bacteriotherapy, and show how his theory differs from that originally held by Koch. We will first, however, call the reader's attention to an important historical point well deserving of recognition. It is well that we should be occasionally reminded of the labors of Villemin, Buhl, Bastian, Cheyne, and others, whose merit must not be overlooked, for they pointed out the way which Koch experimentally followed in his search for the specific bacterium whose existence they declared to be in the highest degree probable. We may even say that they were themselves satisfied of the certainty of its existence.

But Klebs calls special attention to a work which is, we fear, seldom read in this country, or, according to him, at home—the *Rationelle Pathologie* of Henle, the foremost of German anatomists. This magnificent treatise, which bears the date of 1851-'53, if we remember correctly, and is coeval with Paget's *Surgical Pathology*, Williams's *Principles*, and others of those wonderful products of medical learning and genius which ushered in this Golden Age of our profession, is perhaps entitled to the precedence in that generalization which led up to the prophetic announcement of the discovery of specific disease germs.

Few of us, however, will be ready at the author's suggestion to delectate our brains with Schopenhauer's essay on *The Four-fold Root of the Principle of Sufficient Reason*, which, though undoubtedly a splendid exercise of the reasoning and concentrative faculties, would scarcely do for summer reading, to say the least.

The central idea of Klebs's work is to be found in the distinction which he makes between a plan of treatment that aims, while destroying existing disease foci, to procure an *immunity* on the vaccination principle and one which avails itself of the well-known fatal effects of excretory substances upon the excreting organism. In other words, he seeks, by chemical processes which it would be tiresome to the reader for us to transcribe, to obtain by precipitation secreted matters, free from bacilli themselves, which, while they may safely be introduced into the animal body, are destructive to the life of the tubercle bacillus.

By this procedure he escapes the dangers of necrosis of masses of tissue, and at the same time gets rid of the destructive microbes. Indeed, he thinks that the epithelioid and giant cells

may return to their normal state, and that where no necrosis has occurred the tissues may regain their anatomical integrity. In this view he is confirmed by the results of clinical observation.

The author regards the greater destruction of tissue in the human subject as compared with that in the lower animals as due to the longer course of the disease commensurate with the greater longevity and the accompanying slowness of vital processes in man. This same fact, too, enters into the prognosis with him, as it always has with other clinical observers. The less advanced the disease, the more hopeful the case, not only because the infected tissues may return to their normal structure, but also because, when time has elapsed and destruction been wrought, we have, in addition to maimed organs, to deal with a deteriorated constitution, exhausted by fever, malnutrition, loss of sleep, and actual loss of substance.

Professor Klebs divides tuberculosis in man into four stages, the first of which corresponds to the pretubercular stage of our old English authors, at least in its external appearances. But, according to Klebs, the body is already infected in this stage, as may be determined by some preliminary injections for diagnostic purposes. The second stage might be likened to our incipient phthisis, and the others, of course, are characterized by excavation and the more advanced lesions, no distinct dividing line being possible.

The exposition of his peculiar views and a detailed examination of his tables would occupy too much of our space. But whoever is interested in this very important subject will find nowhere so valuable a treatise on the present status of bacteriotherapy as in this great work.

We must compliment the publisher on the excellent form of the book, with its splendid type, excellent paper, and solid binding. It is a pleasure to receive from the continent a book that does not need to be rebound before being read.

Essentials of Nervous Diseases and Insanity: their Symptoms and Treatment. A Manual for Students and Practitioners. By JOHN C. SHAW, M. D., Clinical Professor of Diseases of the Mind and Nervous System, Long Island College Hospital Medical School, etc. Second Edition, revised. Forty-eight Original Illustrations, mostly selected from the Author's Private Practice. Philadelphia: W. B. Saunders, 1894. Pp. x-17 to 194. [*Saunders's Question Compendis*, No. 21.] [Price, \$1.]

THE author states that no new facts have been added to the present edition of this work, which is intended as a primer for advanced students rather than as a substitute for the larger works. It has been carefully prepared and will doubtless prove to be satisfactory for the purposes intended.

Aero-therapeutics, or the Treatment of Lung Diseases by Climate. Lumleian Lectures for 1893. With an Address on the High Altitudes of Colorado. By CHARLES THEODORE WILLIAMS, M. A., M. D. Oxon., F. R. C. P., Senior Physician to the Hospital for Consumption and Diseases of the Chest, Brompton, etc. London and New York: Macmillan & Co., 1894. Pp. xii-179. [Price, \$2.]

It can not be denied that the title *Aero-therapeutics* may be appropriately applied to the climatic treatment of disease, though it might be equally well applied to treatment by rarefied and compressed air artificially employed. Indeed, the "pneumatic" treatment of pulmonary disease is very briefly referred to in the volume under discussion, but so brief is this reference that the title *Aero-therapeutics*, while not unjustified, is yet susceptible of misinterpretation.

Moreover, aero-therapeutics must necessarily mean the atmospheric treatment of any disease, and not merely those of the lungs, and, since the book deals only with the treatment of lung diseases by climate, the second title is eminently descriptive.

Adverse criticism must, however, be limited to the volume's name, for the contents are all that can be desired. It is not an exhaustive work, it is true, but it is sufficiently full for the practitioner's needs, accurate, practical, and charmingly written. For those who wish a small work on the climatic treatment of pulmonary diseases, written by a recognized authority on the subject and presenting practically and usefully most reliable information on a very important subject, we must heartily recommend Dr. Williams's work.

To American readers in particular will the chapter on The High Altitudes of Colorado and their Climates be of great interest and value.

In a brief reference to the Adirondacks, a singular mistake attributes the systematic treatment of consumption there to Dr. "Loanis," of New York.

Pain in its Neuro-pathological, Diagnostic, Medico-legal, and Neuro-therapeutic Relations. By J. LEONARD CORNING, A. M., M. D., Consultant in Nervous Diseases to St. Francis Hospital, etc. Illustrated. Philadelphia: J. B. Lippincott Company, 1894. Pp. 7 to 328. [Price, \$1.75.]

THIS, like all Dr. Corning's works, bears testimony to the originality of the author's thought as well as to his tireless study. One can hardly regret giving it a careful reading, for he will be repaid with some practical idea, but throughout the reader has the feeling that there is a lack of completeness, that the thought has not been developed to its full extent. This is not necessarily prejudicial to the book, because the best works are those which stimulate the reader to thought rather than fill the memory with a dry mass of facts.

At the outset Dr. Corning grapples with the difficult problem of how to formulate a definition of pain, and presents this as his solution: "The feeling (perception) evoked by overstimulation of the nerves of special and common sensation." Although this definition may be open to a certain amount of criticism, it must be classified as unusually good, far better than the majority furnished by other writers. From this definition he passes on to the physiological, pathological, and clinical aspects of pain. More than half the book is devoted to special therapeutics, including internal remedies, local applications, surgical operations, the use of compressed air, and hypnotism. Finally there are some remarks on prophylaxis and on pain as a judicial punishment.

The book is printed clearly on good paper, and is quite well got up.

A Practical Treatise on the Diseases of the Hair and Scalp. By GEORGE THOMAS JACKSON, M. D., Professor of Dermatology, Woman's Medical College of the New York Infirmary. New, revised and enlarged, edition. New York: E. B. Treat, 1894. Pp. vi-21 to 414. [Price, \$2.75.]

WHEN we first reviewed this work, on March 10, 1888, we said that we most cordially commended the book to the profession as the only complete and scientific treatise on the diseases of the hair and scalp that had appeared; and the present edition deserves whatever commendation was bestowed upon its predecessor.

With his well-known care the author has revised and corrected every page of the old edition; he has added new articles, and the bibliography, now filling forty-four pages, has been brought down to January, 1893.

The new sections on aplasia pilorum propria, or monilethrix, on folliculitis decalvans, and on leptothrix are the most complete reviews of these subjects that we know of.

We have no doubt that the author's hope of a favorable reception for his work will be realized.

De l'éclairage des cavités de la face. Par le Dr. MAURICE À COURT TUCKER. Paris: G. Steinheil, 1894. Pp. 48.

In this thesis the author reviews the history of transillumination of the post-facial cavities, and credits Voltolini, of Breslau, with its discovery and application. He considers the scope of this method of examination and states that it is apt to lead to errors due to the operator, or to anomalies, or to affections of the sinus. For purposes of diagnosis he concludes that illumination of the maxillary sinus may prove useful, although the proof that this procedure affords is usually negative. Illumination of the frontal sinus or the ethmoidal cells affords uncertain results. Illumination of the mastoid cells has been too little studied to decide the scope of its utility.

On the Features which distinguish Epidemic Roseola (Rose-rash) from Measles and from Scarlet Fever. By CLEMENT DUKES, M. D., B. S. Lond. London: J. & A. Churchill, 1894. Read before the Members of the Medical Officers of Schools' Association at their Meeting on February 21, 1894. Pp. 39. [Price, 1s.]

THE author deprecates the confusion that the introduction of the term *German measles* has caused, because it confounds three distinct diseases—rose-rash, measles, and scarlet fever—and he urges the adoption of the term *epidemic roseola* as the technical and *rose-rash* as the popular name for *Rötheln*, a term that may be appropriately omitted from our nomenclature. This will help to restrict the confusion, because a parent in giving a child's history can say that it had a certain exanthema, and the physician's diagnosis of the character of an existing eruption is assisted by being made aware of former attacks of some of the exanthemata.

The author presents tables affording a comparison of the symptoms of epidemic roseola with those of measles and also with those of scarlatina. The pamphlet will interest those having much to do with communicable diseases.

BOOKS, ETC., RECEIVED.

A System of Genito-urinary Diseases, Syphilology, and Dermatology. By Various Authors. Edited by Prince A. Morrow, A. M., M. D., Clinical Professor of Genito-urinary Diseases, formerly Lecturer on Dermatology in the University of the City of New York, etc. With Illustrations. In Three Volumes. Vol. III. Dermatology. New York: D. Appleton & Co., 1894. Pp. xiv-976.

A Practical Treatise on Nervous Exhaustion (Neurasthenia), its Symptoms, Nature, Sequences, Treatment. By George M. Beard, A. M., M. D., Fellow of the New York Academy of Medicine, etc. Edited, with Notes and Additions, by A. D. Rockwell, A. M., M. D., Professor of Electro-therapeutics in the New York Post-graduate Medical School and Hospital. Third Edition, enlarged. New York: E. B. Treat, 1894. Pp. 3 to 262. [Price, \$2.75.]

Le Cancer. Par Daniel Critzman, préparateur au laboratoire d'anatomie pathologique de la Faculté de médecine. Paris: G. Masson, 1894. Pp. 5 to 164. [Prix, 2 fr.] [*Encyclopédie scientifique des aide-mémoire.*]

Pus et suppuration. Par le Dr. Maurice Letulle, professeur agrégé, médecin de l'hôpital Saint-Antoine. Avec 47 figures

dans le texte. Paris: G. Masson, 1894. Pp. 6 to 196. [Prix, 2 fr.] [*Encyclopédie scientifique des aide-mémoire.*]

La Chimie de la cellule vivante. Par Armand Gautier, membre de l'Institut, professeur à la Faculté de médecine de Paris. Paris: G. Masson, 1894. Pp. 5 to 174. [Prix, 2 fr.] [*Encyclopédie scientifique des aide-mémoire.*]

Transactions of the Association of American Physicians. Ninth Session, held at Washington, D. C., May 29, 30, 31, and June 1, 1894.

Fifteenth Annual Report of the State Board of Health of Illinois. [Being for the year ended December 31, 1893.]

Chromicized Catgut as a means of Direct Fixation in the Treatment of Fractures and Osteotomies, with a Report of a Case. By F. W. Jay, M. D. [Reprinted from the *Journal of the American Medical Association.*]

How Long is Syphilis Contagious? By J. D. Thomas, M. D. [Reprinted from the *Journal of the American Medical Association.*]

First Special Report of the Factory Inspectors of Illinois, on Small-pox in the Tenement House Sweat Shops of Chicago, July 1, 1894.

The Annual Report of the Department for the Insane of the Pennsylvania Hospital for the Year ending Fourth Month 25, 1894.

De l'agrandissement momentané du bassin oblique ovale par ischio-pubiotomie. Avec considérations sur la puissance nocive du forceps, etc. Par L. H. Farabeuf. [Extrait des *Annales de gynécologie et d'obstétrique.*]

Dystocie du détroit supérieur. Mécanisme—diagnostic—traitement par symphyséotomie. Par L. H. Farabeuf. [Extrait de la *Gazette hebdomadaire de médecine et de chirurgie.*]

Reports on the Progress of Medicine.

PHYSIOLOGICAL CHEMISTRY.

By ERNEST ELLSWORTH SMITH.

Beef Extract.—Kemmerich has recently (*Zeit. f. physiol. Chem.*, xviii) published the following analysis of South American beef extract:

15 to 18 per cent.	Water.
33.23 per cent.	6.19 per cent. gelatin.
albuminous substances.	9.89 per cent. albumoses.
	4.87 per cent. soluble albuminous substances.
	12.31 per cent. peptones soluble in eighty-per-cent. alcohol.
	20 to 22.34 per cent. ash.
	1.22 per cent. glycogen.
	4.33 per cent. kreatinin.
51.77 per cent.	0.25 to 1 per cent. carnin.
	1 per cent. fat.
	18 to 22.09 per cent. extractives, mostly unknown.
	0.91 per cent. ammonia.

100 per cent., containing 8.13 per cent. nitrogen.

Here we see that fully one third of the total constituents is albuminous substances, a large part of which is directly available. This favorable composition is to be attributed in part perhaps to the method of preparation of this extract, but quite largely to the use of new and improved methods of analysis, as contrasted with the methods of Liebig heretofore employed.

From the Author's results it is possible that many of the beef extracts possess dietary value in virtue of albuminous constituents which, owing to their loss of coagulability and changed solubility, have escaped recognition by chemists and been included among the so-called extractives. A beef-peptone preparation subjected to similar analysis gave an equally unusual amount of albuminous substances. It will be of interest and importance to see to what extent future analyses confirm these results obtained by this chemist.

The Amount of Nitrogen in Red Blood-cells.—R. von Jaksch has shown (see *New York Medical Journal*, vol. lix, p. 91) that the amount of albuminous substances in blood is subject to great fluctuation in pathological conditions. Thus, while in health a hundred grammes of circulating blood contain 22.6 grammes of proteid, the amount in extreme anæmic conditions may diminish to ten grammes and even less. The question arises to what extent the blood-cells and the blood-serum are each responsible for this fluctuation. As regards the blood-serum, it has been stated in the review referred to above that except in the case of renal disorders the amount of proteid in the serum is subject to little variation. This author in a later communication (*Zeit. f. klin. Med.*, xxiv, p. 429) presents the results of a careful study of the amount of nitrogen of the red blood-cells in health and disease.

To the clinician the question is of importance whether in primary and secondary disorders of the blood a diminution in the amount of proteid is to find explanation alone in a diminished number of red blood-cells, or whether alterations of the blood exist in which the red blood-cells are changed so that they are actually poorer in proteid and hence in nitrogen. Von Jaksch finds for blood in health that a hundred grammes of moist red blood-cells contain 5.52 grammes of nitrogen, corresponding to 34.5 grammes of proteid. The results obtained from the study of blood from some acute diseases (*i. e.*, pneumonia and typhoid fever) and in certain chronic disorders (*i. e.*, heart failure, liver affections, nephritis, diabetes) show that the amount of nitrogen in the red blood-cells remains practically unchanged. Hence it appears that in these disorders any fluctuation in the amount of proteid not due to variation in the proteids of the serum depends upon a variation in the number of red blood-cells. Of even more interest are the following results: In secondary anæmias, besides a scarcity of the blood in proteid, a diminution of the total solids, and an increase in the amount of water, there is in addition an actual decrease in the amount of proteid in the red blood-cells themselves (4.52 grammes of nitrogen corresponding to 28.25 grammes of proteid). In primary anæmias, on the other hand, the results are different. While in chlorotic and leucæmic bloods the proteids seem to be diminished as in secondary anæmias, in pernicious anæmia the red blood-cells are actually richer in nitrogen and hence in proteid.

Gastric Acidity and Intestinal Putrefaction.—Mester has recently contributed (*Zeit. f. klin. Med.*, xxiv, p. 441) to our knowledge on this subject results obtained from experimentally feeding dogs on meat washed free from chlorine. In this way the amount of chlorine present in the blood and tissues, and consequently the hydrochloric acid of the gastric juice, were greatly diminished, so that in fact the sodium chloride eliminated by the kidneys fell from 0.28 per cent. of the urine at the beginning of one experiment to less than 0.01 per cent. during a considerable period at the end of the same series. Owing to the fact, the author believes, that the meat in its preparation was freed very largely from putrefactive bacteria, the first series shows very little difference in the combined sulphates of the urine or in the ratio of the combined to the preformed sulphates. In subsequent series of similar feeding experiments, in which the

chlorine-free meat was allowed to undergo some putrefaction before feeding, the combined sulphates, and the ratio as well, indicated that intestinal putrefaction was increased above the normal. The final series was a control, in which the animal was fed putrid meat with an abundance of chlorine. The combined sulphates and the ratio approached the normal again.

Nuclein and Nucleo-albumin.—Hammarsten recommends (*Zeit. f. physiol. Chem.*, xix) the following classification of nucleins and nucleo-compounds:

Nuclein, to designate, after Kossel, such phosphorus-containing substances as remain in the peptic digestion of complex proteids, which further are compounds of albuminous substances with nucleic acid and yield xanthin-like bases by decomposition.

Paranuclein, to include, after Kossel, nuclein-like bodies which are formed in peptic digestion of simple albuminous substances, but which do not yield nuclein bases. Since these substances differ much among themselves, and are only similar in that they resemble nucleins in certain particulars, Hammarsten suggests that they be called *pseudo-nucleins*.

Nucleo-albumin, to include only phosphorus-containing simple albuminous substances, as, for example, casein, which are not compound proteids, and by peptic digestion yield pseudo-nucleins.

Nucleo-proteids, to include all complex proteids which by peptic digestion yield, beside simple proteids, true nucleins, and give by more profound decomposition nuclein bases. To this class belongs a compound which the author has discovered in the pancreas and calls the pancreatic nucleo-proteid. It is made up not only of nuclein in combination with an albuminous substance, but contains some third part, perhaps animal gum, which, by heating with dilute acids, yields a reducing body. Hammarsten is unable to state the exact nature of this reducing substance, though the evidence favors the view that it belongs to the penta-glucoses. The fact that this complex proteid of the pancreas is capable of yielding a reducing body is of interest in connection with the continuation of glycosuria or diabetes in patients from whom all carbohydrates are withheld for a considerable time, and whose food is hence entirely proteid in nature; it suggests a possible explanation of the origin of sugar from proteid matter.

The Urea-forming Function of the Liver.—Münzer (*Archiv f. exp. Path. u. Pharm.*, xxxiii, p. 164) reviews critically the literature of this important subject and presents the results of an investigation of the urea-forming function of the liver in which he with Winterberg studied twelve cases of diseased conditions of this organ.

Early investigators reported a very large amount of urea in the liver, but with more recent methods analyses show that the amount of urea contained in this organ is only proportional to the size and the amount of blood. When certain ammonium salts, particularly ammonium carbonate, are passed through the liver a synthesis with the resulting formation of urea occurs. The presence of ammonium salts in normal urine can not be taken as evidence of the existence of an ammonium compound in the blood which is a precursor of urea, and, escaping the synthetic transformation, is eliminated by the kidneys. The ammonia of urine is acid-neutralizing ammonia, and may be replaced by other bases, as in feeding sodium carbonate. Moreover, the urine of herbivorous animals, whose food contains little or no ammonium salts, likewise contains little or no ammonium, notwithstanding the formation of urea in the body.

In order to establish that the liver is the chief urea-forming organ, it must be shown, first, that after destruction or removal little or no urea is formed—*i. e.*, in case of surviving the operation for a sufficient time the urea must wholly or largely

disappear from the tissues and the blood and the precursor appear in its stead; and, second, clinically, that in diseased conditions of the liver, with associated deranged metabolism, there is a disturbance of the urea-forming function. Extirpation of the liver of the dogfish (*Scyllium catulus*) is without influence upon the large amount of urea in the muscles, though it may be held that this is due to the failure of the slowly acting kidneys to eliminate any urea during the period of surviving (seventy hours). After the injection of ammonium salts into the lymph sacs of frogs with the livers removed, urea appears in the excrement. Hence, while perhaps not decisive, these experiments give little support to the theory that urea formation takes place very largely or exclusively in this organ. As regards the appearance of a precursor in liver extirpation, it is known that in the goose the uric acid disappears almost entirely out of the urine and more than one half the nitrogen is eliminated as ammonium salts. Urea introduced is eliminated unchanged and amido acids increase the ammonium output; all of which points to a synthetic function of the liver in the formation of uric acid in this animal. After partial removal of the liver of higher animals there is a diminution in the urea excreted and an increase in extractives, although after the operation the amount of urea may gradually return to normal.

Such are the facts which experimental observations have established, but, the author justly believes, they still leave an uncertainty as to the part the liver takes in urea formation, an uncertainty which is to some extent, perhaps, removed by clinical observations, though even here the evidence of different observers is conflicting. Some have found in diseases of the liver that the urea output is decreased and the ammonia excreted is increased to such an extent that they are justified in concluding that there was a decided interference in urea formation attributable to the loss of function of this organ. In this connection it must be borne in mind, as Münzer suggests, that there may be an increased acid production in these cases, and that the increase of ammonia may be to supply basic radicals to neutralize these acids. On the other hand, other observers find the variation of the relative amounts of urea and ammonia not sufficiently changed to indicate any considerable irregularity of urea-forming function. Münzer states that in his observations he has never seen a sufficiently abnormal excretion in conditions of this kind to establish with certainty that such a function of the liver was interfered with, and concludes that the assumption that urea is formed chiefly by synthesis in the liver has not as yet been proved. It is probable that in each organ the urea-forming function is greater or less, according to the amount of material which is there undergoing chemical transformation.

New Inventions, etc.

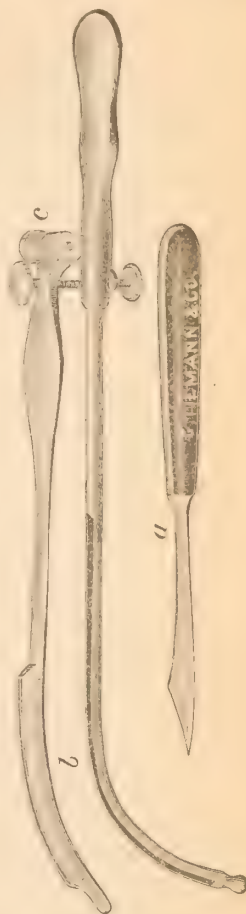
AN EXTERNAL URETHROTOME.

By J. H. LOWREY, M. D.,
NEOLA, IOWA.

I HAVE the honor of presenting to the medical profession, through the columns of your valuable journal, a new instrument I have lately devised for performing external urethrotomy. In conformity to the established rule, I shall call it, if you please, Lowrey's external urethrotome. Through the kindness and co-operation of Messrs. Tiemann & Co., of New York, I have been assisted materially in perfecting this instrument, so it now embodies cheapness, durability, and simplicity of action—essential qualities for a practical instrument. This instrument

renders external urethrotomy so simple a surgical procedure that no surgeon need hesitate to perform it. Complete, it consists of a series of graded *stoffs*, or Gouley's guides, as the surgeon may prefer. The *stoffs* are made adjustable to a universal handle, where they are immobilized by a set screw. Attached to this handle is a companion or external guide. This guide swings on a hinge of sufficient breadth and strength to prevent the least lateral motion. Immediately below this hinge is a set screw, which answers a dual purpose: first, to enable the operator to adjust the space he wishes between it and the internal guide; secondly, to enter by its point a groove in the handle, giving it solidity—a very necessary feature. The upper part of the blade is broad, flat, and flexible, while its distal extremity is slightly curved to fit the perineum. A quarter of an inch from this end is a transverse groove, indicating the floor of the prostatic urethra, and from this groove, extending up two inches and a half, is a slot in which the blade of the perineal knife fits accurately. Projecting along and from each side of this slot are flanges, the purpose of which is apparent to the surgeon. The remaining accessory, the perineal knife, is sufficiently described by the cut. Now, regarding its practical application.

After having selected the size of *staff* or guide the operator intends using, slip it in the handle and secure it firmly. Turn the companion guide up parallel with the handle; it is now out of your way. The *staff* or guide is now introduced, supposing the patient is in the lithotomy position. The companion guide is now brought down, and its flexible body enables one to press its curved extremity against the perineum. The slot referred to points to the groove in the internal guide, and the transverse groove indicates the level of the prostatic urethra. There is no possibility of a mistake now. Cut forward and backward or downward through this slot, and your knife at once enters the groove you are seeking. The urethra and adjacent structures are not mutilated, and a sometimes difficult and prolonged operation is made an easy and simple task. The prostatic grooved director is now introduced alongside the knife till it enters the groove of the internal guide. The perineal knife is withdrawn and a blunt-pointed prostatic bistoury substituted, and the operation completed according to the recognized technique for such operations.



Miscellany.

The Hydriatic Treatment of Pneumonia.—In a recent clinical lecture given by M. Rendu at the hôpital Necker and published in the *Journal des praticiens* for August 4th, after giving the material points in the histories of two cases of

pneumonia that were terminating at the time in convalescence, the speaker made in substance the following remarks: Contrary to what one might think *a priori*, the wet pack does not by any means act in the same manner as the bath; the two means of treatment are absolutely different. M. Rendu said that he had been using the wet pack for ten years in cases of the broncho-pneumonia of measles, and on the strength of that experience he described its effects as follows: At the moment that the patient is laid upon the wet cloth he feels a general sensation of cold, and occasionally it may amount to a chill, but this stage of refrigeration is brief, sometimes lasting no more than a few seconds. Soon the patient's temperature becomes the same as that of the cloth, and for about half an hour he feels a sensation of well-being and relaxation. This stage also is short; reaction soon occurs, and the patient complains of heat and of redoubling of the fever. Not only is the sensation of heat excessive, but there really is a sort of hyperthermia; the thermometer shows a rise of from 2° to 3° F. The third stage is characterized by relaxation and sweating. It usually begins at the end of about an hour and lasts about two hours. During this time the temperature is lowered and at the same time the sweating increases and sometimes becomes excessive. These three periods of the effects of the wet pack may be compared to the three stages of an attack of intermittent fever, but with this difference, that the stage of initial chill and that of heat are very short, while the sweating is of long duration. It is not alone upon the skin that the wet pack acts; the kidneys also feel its influence. Almost always, either during the sweating or after it, diuresis takes place; it is not uncommon indeed to see the expectoration change, becoming more copious and thinner. The intestinal secretions seem to be the only ones that are not encouraged, and constipation is the rule. It should be well understood, in the light of all this, that when we prescribe the wet pack we are not prescribing refrigeration; we provoke effects analogous to those of vapor baths, but more lasting. Lowering of the temperature does take place, it is true, but tardily and as a consequence of the sweating. When sweating is not produced the patients feel no more than an insignificant amelioration; on the contrary, it is very decided and lasting when the thermal reaction has been intense and the sweating copious.

Quite different is the effect of cold baths; they produce real refrigeration, especially when the bath is prolonged for from ten to fifteen minutes. This refrigeration is rapid and intense, especially during the first few minutes, after which it is more gradual. This sudden refrigeration gives rise to contraction of the peripheral blood-vessels, whence the pallor and blueness of the skin and the lividity of the fingers and the nails. The flowing back of the blood upon the viscera accounts for the immediate sensation of dyspnoea and oppression, and also for the desire to make water experienced by most patients. This first stage is very brief, and a sensation of well-being succeeds it after the first few minutes have passed. In short, the bath exerts a powerful sedative action upon the nervous system; it diminishes pain and cerebral excitement and does away also with sleeplessness. Of this last-named effect several explanations have been given. Winternitz maintains that the bath produces anæmia of the nervous centers by reflex contraction of the capillaries, but M. Rendu thinks rather that the relief from fever leads to a sensation of comfort whereby the capacity to go to sleep is the result. The bath acts most energetically upon the kidneys, and its diuretic action is immediate—the majority of the patients make water in the bath. This diuretic action is due to an increase of the intravisceral blood-pressure and to excitation of the renal nervous system. There is a manifest action of the bath upon the heart, the beats of

which become slower and stronger, and this is due to the double influence of the bath upon the central nervous system and upon the blood-pressure. After the bath reaction is slow. The patients remain cyanosed, with a pronounced sensation of cold; they have lost about 3° F. of heat in the water, and on an average it takes them two hours to recover it. Sometimes, it is true, the thermic reaction after the bath takes place violently, but most commonly it is slow and there is hardly ever any secondary sweating. Calmness, on the other hand, is constant, and drowsiness after the bath is the rule.

A cold bath, then, is the chief of sedatives. The action of the bath is not free from danger, on account of the internal congestion which it produces at first. M. Rendu does not know that thus far anybody has observed hæmoptysis in patients with pneumonia subjected to the bath, but it must not be forgotten that in typhoid-fever patients intestinal hæmorrhage has so frequently seemed to depend upon the bath that there is some reason in holding that it does. Certainly the use of the cold pack is less dangerous than that of the bath, but that is no reason for always choosing it—in some instances it brings about results after the wet pack has almost completely failed. Like all efficient therapeutic agents, water needs to be handled prudently in its various applications; there are indications and contraindications of bathing and wet packing. The indications for cold baths rest particularly upon the predominance of nervous phenomena, whatever may be their form. Whenever in a patient with pneumonia we see the occurrence, progressive and persistent, of delirium with ataxia and picking at the bedclothes, whenever an adynamic condition like that seen in typhoid fever is added, with diminution of the urine, feebleness and irregularity of the heart, and a tendency to collapse, and when convulsions supervene with agitation between the spasms, the indication for the cold bath seems to M. Rendu absolute. It should be used as a sedative to the nervous system, as a stimulant to the heart, and to restore the urinary secretion. It may be added that it is often useful to act simultaneously upon the nervous centers with quinine and upon the heart with caffeine, preferably in hypodermic injections.

The contraindications of the cold bath are connected with the patient's age, some preceding pathological condition, and the extent of the pulmonary lesions. The cold bath is dangerous in old persons, who do not react well, whose circulatory system is defective, and whose kidneys often are not acting well. On the contrary, it is very well borne by children and young persons, whose physiological conditions are precisely the reverse. This implies that cardiac and arterial lesions are also a contraindication of the bath. A valvular lesion, and especially degeneration of the muscular substance of the heart, may be the occasion of syncope at the moment when the patient is plunged into cold water, and in like manner the existence of atheromatous patches in the cerebral arteries may give rise to their rupture and consequently to encephalic hæmorrhage. Finally, the extent of the pneumonic lesions seems to M. Rendu to constitute a formal contraindication. Patients with double pneumonia should not be treated with the bath, and the danger is almost as great when hepatization has invaded the whole of one lung; the action of the cold bath in producing an afflux of blood to the chest may give rise to asphyxia. The existence of albuminuria, on the other hand, does not seem sufficient to contraindicate the baths. Most of the persons who are gravely ill with pneumonia and treated with the bath are at the same time albuminuric, and even as concerns their kidneys they derive benefit from the cold bathing. From this, however, must be excepted those who are manifestly arterio-sclerotic and affected with chronic interstitial nephritis, for the bad condition of the general circulation in such patients is a serious impediment to

the bathing treatment. The same is true of diabetics, who almost always react badly and in whom pneumonia is apt to be malignant.

The indications for the wet pack are much more numerous, because its immediate refrigerant action is very transitory and because reaction takes place after a period of increased heat which is hardly ever wanting. The aged, those with atheroma, and those with Bright's disease may be packed. The pack may be used in extensive pneumonias, even those that are double, if its employment is watched attentively. The wet pack answers equally well in cases that are hyperpyretic, infectious, inflammatory, or toxic; the only contraindication is collapse with algidity, which hinders reaction. So this mode of treatment may be applied in all acute congestions of the lung, primary and secondary, even in patients that are tuberculous, affected with heart disease, and having albuminuria. It is proper to use adjuvants at the same time, also symptomatic medication. Accordingly, the heart should be sustained with digitalis or preferably with caffeine or sparteine. When there is any periodicity of the symptoms, also in conditions due to influenza, it is useful to give quinine. Finally, the general condition should never be lost sight of, and should be sustained by tonics, the chief of which are alcohol and quinine.

The lecture was concluded with a *résumé* of the history of refrigerant medication in pneumonia, leading back to the quotation of this astonishing passage from Hippocrates: "The bath is more appropriate in pneumonia than in the burning fevers; it mitigates the pain in the side, it ripens and facilitates the expectoration, it eases the breathing, it does away with the feeling of lassitude by the property it possesses of relaxing the articulations of the surface of the skin, and it is diuretic." What cause there is for reflection, says M. Rendu, when we thus see modern physiology and practice carry us back to the Hippocratic doctrines forgotten and abandoned in darkness for centuries!

The Present Hospital Care of the Insane.—In the *Journal of Nervous and Mental Disease* for August, 1894, there is an article by Dr. Samuel B. Lyon on this subject, of which the following is the substance: The insane exceed any other class of sick persons, and this is particularly true of this country and age, because many foreign insane persons have come here voluntarily, or been sent by the authorities of their respective homes, who have not scrupled to shift their rightful burdens to the shoulders of others, and partly because the greater protection which the insane enjoy in our institutions gives them a longer lease of life than formerly. In 1892 the insane of the State of New York exceeded seventeen thousand, and with such a large fraction of the population insane and dependent for guidance and support upon others, the question has been asked from time to time what is being done for them, and how it is accomplished. . . . The systemized care of the insane in any public manner, and as a duty of the State, is so new, and its development is yet so much a matter of experiment, that it is not so strange that there are defects as that so much is done and done fairly well. The majority of insane patients are in hospitals which are controlled directly or indirectly by the State, and the author thinks it is wise to consider the question of their organization and what they accomplish. Many of the inmates of these hospitals are hopelessly insane; many of them have outlived their families, and know no home and few friends outside of the institution they live in, and if sent away from the hospitals would have to resort to the almshouses. For a smaller proportion of the insane there remains a hope of recovery, and for these nothing in the hospitals which can help toward this result is considered too good, and no attention on the part of

the physicians or the nurses too constant, observing, or self-sacrificing. Dr. Lyon believes this to be generally true, with but few discreditable exceptions.

The ability of the hospitals to care for the insane must vary according to their resources. They can not be conducted, even on the most economical scale, except at large expense for the mere necessities of life. If economy is practiced, it is toward the chronic insane, whose prospects are not endangered by so doing. . . . The organization in England and in this country of such hospitals as are being considered is based on an authoritative board of citizens of local prominence and an executive staff of physicians of good character. In New York they must be examined by a State board before entering its service. The physician's experience with the insane gives him a practical familiarity with insanity, and his patients' not infrequent ailments also give him general practice and tend to keep him in touch with medicine. Hospital physicians, as a rule, do good and conscientious work, and they supplement their large personal experience with the insane by reading and assimilating much of the literature of this subject. . . . In treatment the hospital physician is always ready and anxious to try anything tending to beneficial results, and to give his patients the benefit of the latest discoveries in medicine. In the control which he exercises in respect to their diet, habits, exercise, and hygienic surroundings he generally has an advantage over the general practitioner.

How far, the author asks, have the hospitals for the insane fulfilled an educational duty? They are situated away from the heart of the town, and rather far from the student, whose moments are too much occupied to spend many of them in going to and from remote hospitals. Many of them are unsuited for schools for instruction in mental diseases, but the great city institutions are exempt from this disability. In all countries the charity hospitals use their patients as subjects for the education of new doctors. Our own hospitals, containing thousands of insane persons, are, perhaps, not sufficiently utilized, but they would furnish the best possible field for its study. If the cities of New York, Boston, and Philadelphia maintained, in connection with their public general hospitals, reception hospitals for the poor insane, where patients could be kept long enough to be carefully studied by capable experts and observed by students, and where many of them might even recover from transitory states of mental disturbance, and if these cities also maintained good laboratories where pathologists could give themselves entirely to investigation and instruction in relation to the morbid processes in insanity, a long step forward would be taken, and the charge, sometimes made, of wasting opportunity would no longer be deserved. . . . New York State, with its nearly twenty thousand insane wards, should take a broad and liberal view of its duty toward science in its various departments. A well-equipped laboratory for studying insanity at a centrally located State hospital, and others at the great city institutions for the insane, with capable investigators who would devote their entire thoughts and energies to these investigations, would give valuable results to science. Such laboratories would be post-graduate schools of the most useful kind where the medical student could carry on his studies without limit as to their extent. Such opportunities as the Johns Hopkins University and the Clark University laboratories afford invite earnest work beyond the preparatory field, and they must come more and more to be the workshops of men where long and earnest investigation will bring to light such facts as will build up the permanent structure of medical knowledge.

Chloroform Dangerous to Meat-eaters.—The geographical distribution of accidental deaths from chloroform is peculiar,

according to Dr. Lauder Brunton, as reported by *The British Medical Journal* for July 7th. Practitioners favor chloroform in the southern United States, in Egypt, and in India, while in London and the northern United States they dislike it. There has been a marked increase in the deaths under chloroform administration during the last few years in Great Britain. During these years the feeding of the population has been changed to an enormous extent by the increase in meat-eating due to the importation of low-priced refrigerated meats. Edinburgh has been an exception to the rule that the physicians of the colder cities do not prefer chloroform, but latterly the deaths from its use in that city have been more frequent, and gout has become less rare, both of which results may be due to the much-increased use of butcher's meat. A Russian observer has found that if the urine contains alkaloids, trouble may be expected from the administration of chloroform. This may explain why the cases which give the most trouble usually occur in strong, healthy men, who have been on a full diet, and are thus likely to have stored in their tissues a quantity of such alkaloidal products as result from meat-eating. These substances, accumulating in the blood during anæsthesia, may act as a poison to cause heart failure, while chloroform, administered in the ordinary manner, tends to paralyze the respiratory center before the heart is weakened.

Circumcision and Allied Rites.—In the *Bulletins de la Société d'anthropologie de Paris* (February, 1894) Zaborowski gives a summary of various researches on the origin and different forms of circumcision. This ceremony, practiced by numerous tribes, non-Semitic as well as Semitic, is very ancient. It was carried out at the advent of puberty, the beginning of sexual adult life, the operation being analogous in both sexes. The adolescent thus entered formally into the social existence of his or her tribe. Of similar import may be regarded the initiations to a responsible status in Rome, the "first communion," the "coming of age," and the grave procedure by which, among the Koreans, a boy "becomes a man," and changes his style of dress accordingly. The "muscle dance," of recent notoriety, is only one part of the festivities which, among many peoples of Asiatic origin, usually accompany this authoritative announcement of a person's arrival at maturity. Circumcision itself has since been performed at different ages, from that of eight days to that of twenty or more years, for reasons of religious significance or of convenience, or because of some local modifying influence—the original meaning of the act having become obscured in the long course of time and in its transmission.

The Alleged Formation of Heat in the Salivary Glands.—From a repetition of the experiments of Ludwig, Spiess, and Bernard, which seemed to show that the newly formed saliva was nearly two degrees warmer than the carotid blood, Professor W. M. Bayliss and Professor Leonard Hill, of the University College, London, have been brought to the position of denying, in *The Journal of Physiology*, that any measurable formation of heat can be demonstrated in the salivary glands. In the original form of the experiments the stem of the thermometer lies in tissues deprived of circulating blood, the carotid blood simply pulsating against the bulb, so that clotting must ensue and an apparently low temperature of the blood be shown. But on using the wire-resistance thermometer and the thermo-electric junction method the saliva never proved to be warmer than the aortic blood, and in consequence of the velocity of the blood flow the temperature is the same in all the large arteries. Chemically considered, the heat that might be produced by the breaking down of glucose and other substances during the production of saliva would be very slight,

and even ten times this amount of heat spread over blood, gland tissue, and saliva, and formed during the circulation time of a thousand grammes of blood, would be quite an immeasurable quantity. In the experiments, the blood temperature in the arch of the aorta was found the same as that in the abdominal aorta, and the temperatures of the salivary glands and tissues in a warm room and in a protected animal were often almost as high as that of the aortic blood. Considering the nature of the salivary secretion, the smallness of the salivary glands, and the amount of blood racing through the gland during activity, with the fact that arterialized blood issues from the gland veins during activity, it is considered highly improbable that any measurable amount of heat is formed in the glands. The conclusion of the experiments is that no formation of heat can be detected in the submaxillary gland by any known method of measuring variations of temperature.

The Cause of Death from Chloroform.—Heart weakness is so generally assumed to be the first warning of danger in chloroform narcosis that during the anæsthesia the pulse is more closely watched than the breathing. That chloroform has no direct action on the heart, however, and that it kills by inducing respiratory paralysis, is the conclusion of Surgeon-Lieutenant-Colonel Lawrie, as reported in the *British Medical Journal* for July 7th. At a recent meeting of the Royal Medical and Chirurgical Society he contended that the experiments, including those performed under the auspices of the Hyderabad Commission, proved that death from chloroform was due to respiratory failure, and that the practical point to remember during its administration was that the condition of the pulse was quite subsidiary, but that the state of the respiration should be closely watched. Chloroform being an irritant, protoplasm is irritated and destroyed by either its liquid or its vapor. When it is injected into the substance of a muscle, such as the heart or the biceps, motion is arrested in the same manner as it is by hydrochloric acid or any other irritant. He argued that in poisoning from the inhalation of chloroform this irritant action could no more take place in the heart than in the biceps, and hence might be ignored in considering the clinical question of accidental death under this anæsthetic. In his experiments with animals, chloroformed blood sent to the heart alone produced no effect whatever, but when it was sent to the brain alone the narcotic acting on the brain centers produced its usual effects. From tracings of the pulse and of the breathing, he demonstrated that chloroform anæsthesia without respiratory complication was free from risk.

From much experience with chloroform, Mr. Horsley also was convinced that it was the arrest of respiration which resulted in death, and that in the majority of cases of danger inversion of the patient and artificial respiration would cause recovery. Mr. Gaskell and Mr. Shore agreed that respiration failed first, but held that chloroform had a direct action on the heart also. Dr. Lauder Brunton's experience was that chloroform always paralyzed the respiratory center before enough had been taken to paralyze the heart. A number of the accidental deaths were due, not to the chloroform, but to the operation itself, to asphyxia, or to noxious substances circulating in the blood. Mr. Lawrie concluded by stating that he had found it impossible to teach careless men to administer chloroform safely, and that heart failure might be indirectly produced by stimulation of the vagus through irregular breathing. He had noticed no difference in the effects of chloroform on different races or nationalities. In seven hundred cases of chloroform narcosis the pulse had been carefully watched, but it had given no reliable indications of danger.

Special Hospitals and Private Interests.—Under this heading the *Lancet* for August 4th publishes a letter from a

practitioner who says that a patient of his, with his approval, attended as an out-patient at a special hospital, for the purpose of having a little operation performed. The circumstances were such that he could not have it done at home, but was willing to pay for his bed in the hospital. He is described as being only a clerk living in lodgings. On his first visit, after he had put five shillings into the box, in accordance with the house surgeon's suggestion, substantially the following conversation took place: "Well, it's no use your coming here as an out-patient; an operation must be done, and you must be inside." "That's what I wish and came here for." "Oh, you can't come in here for six months at least, because there will be no bed till then. I will tell you what I will do. If you will take rooms near, I will get one of the surgeons to do the operation for, say twenty guineas (in the ordinary way it would cost you fifty or eighty guineas), and I will do the necessary after-treatment at the usual fee of a guinea a visit." Thereupon the house surgeon gave the patient his visiting card, but the patient did not repeat his visit—he decided instead to try another hospital. The practitioner got a letter from the surgeon of that hospital suggesting that "the patient would do better at home if we could work together."

The *Lancet* comments upon this affair as follows:

"The house surgeon, it will be seen, magnified the operation and represented it as justifying a charge more suggestive of a major operation on a rich man than a comparatively minor operation in one who was 'only a clerk' and 'living in lodgings.' Moreover, he proposed an arrangement by which one of the surgeons, as a matter of favor, should receive twenty guineas for the operation and he himself should take up the after-treatment and be paid at the rate of a guinea a visit. No allusion was made throughout to the ordinary attendant of the medical man, who had sanctioned the patient going to the hospital for treatment, obviously believing it to be a fit case. The excuse for these remarkable proposals was that the hospital was full and that it would not be possible to take the patient in for six months. This excuse is without force. The house surgeon's duty was discharged in saying that the hospital was full. If he had a notion that the case was one for private treatment he should have referred the patient back to his own medical attendant with a message on his visiting card. This is the kind of courtesy that general practitioners are entitled to expect from the staff of a hospital, and without which there is no hope of avoiding the abuse of hospitals by patients or of securing considerate treatment for a patient who may have a decent coat on his back and yet be entitled to hospital relief, as appears to have been the case here. Instead of this the house surgeon gave his visiting card to the patient with instructions to see him next week with the view of clinching all these little arrangements. The patient naturally did not return, but tried another special hospital, where, strange to say, he was encountered with somewhat similar proposals.

"We can not bring ourselves to believe that such overtures would be made in any of the large general hospitals of London. They are of a nature to increase the suspicion with which small or special hospitals are already regarded. It can scarcely be doubted that the smaller and the more special a hospital is the greater must be the temptation for its officers to turn it to personal purposes. The ethics of specialism need to be even higher—as we have said before—than those of general practice or ordinary consulting practice. The very pretense of superior and special knowledge is in itself apt to have a demoralizing effect in ways which we need not now stop to explain. Be this as it may, we can only hope that the publicity which we give to our correspondent's letter and our own remarks will be sufficient to put all officers of hospitals on their guard against a use

of their positions and of their hospitals which is simply intolerable. Our respect for hospitals is unbounded, but only on the condition that they are not abused either by receiving unfit cases or by making such cases a means of personal advertisement and of securing personal advantage. That a house surgeon should be able to monopolize a patient and make terms with him (to say nothing of his involving a member of the honorary staff in the arrangement) is surely a course of proceeding never contemplated by the benevolent public whose charity maintains the hospital, or by the profession whose opinions are certainly entitled to some consideration in such matters. Even when the honorary surgeon himself thinks a patient unfit for reception into a hospital he should refer him back to his private medical attendant, who best knows his means, and leave to him the selection of a consultant or an operator."

Croton Oil in the Treatment of Phlegmonous Pharyngitis.—A striking example of the diversity of results obtained by various observers employing a particular therapeutical agent was furnished in a discussion on this subject at the first meeting of the laryngologists of Southern Germany, held in Heidelberg last May. According to a report in the *Mercure médical* for August 1st, Dr. Helbing called attention to the good effects that had been obtained in phlegmonous pharyngitis by frictions of the upper part of the neck with croton oil. These effects, he said, were particularly noticeable in relapsing phlegmonous pharyngitis, provided the patient himself made the frictions as soon as he felt any pain in the pharynx. The effect was perceptible as early as on the second day. The speaker said it was necessary that the oil should be freshly prepared and of the proper color; under those conditions it would not cause an eruption. Dr. Sacki had witnessed the efficacy of one or two drops of croton oil applied by friction at the level of the angle of the lower jaw. Dr. Faber had never used croton oil in these cases, but he had used a concentrated solution of iodine, and obtained results quite as satisfactory. Dr. Seifert had tried croton oil, but without the least success. Dr. Bauer said that relapsing attacks of phlegmonous angina could be avoided by removing the tonsils or by cauterizing them with trichloroacetic acid, the galvanic cautery, or some other cauterizing agent. Dr. Kahreitz thought that phlegmonous angina was due to a local infection, and that it should be treated locally with antiseptics and disinfectants. Dr. Bresgen maintained that the relapse was often due to a concomitant suppuration of the nasal passages, and that this suppurative should be the chief subject of treatment. Dr. Schmidt had seen no effect from croton oil further than rebellious eczemas, without the least action upon the disease of the pharynx.

The Hygiene, etc., of Kissing.—Not long ago we had occasion to allude to a scare that had been promoted concerning the dangers alleged to lurk in the communion cup. It seems now that in a neighboring State a comparable perturbation has been founded on the dangers of kissing; the sanitary committee of the Orange, New Jersey, Board of Health is said to have recommended that a circular be distributed "urging every one to desist as much as possible from kissing, as the touching of lips is likely to convey contagion." Commenting upon this, the *British Medical Journal* says: "That foul and deadly disease may be, and often is, propagated in this way is of course a fact of which there can be no sort of doubt. Many a mother has, like the Princess Alice, caught infection from the lips of her child dying or dead of diphtheria. There is every reason to believe that the existence of tuberculosis may be implanted by kissing, and the too common slobbering of children by friends of the family or by officious strangers can not be too strongly condemned on hygienic grounds. It can not therefore be de-

nied that kissing is dangerous; but will 'sanitary committees' be able to put it down, as a too sanguine magistrate once undertook to 'put down' suicide? Will love-making be conducted on antiseptic principles? 'Kissing goes by favor,' we are told—is it for the future to be by favor of the county council? Great, no doubt, is Hygeia, but we will back human nature with some confidence against her."

The Address in Public Medicine before the British Medical Association, at its recent annual meeting, was delivered by Sir Charles A. Cameron. It was maintained that in the government of modern communities the medical man played, even from a public-health point of view, a very subordinate part, and yet there were many medical men eminently fitted by their culture, experience, and ability to hold the office of minister of public health, with a seat in the cabinet. The high death-rate among the poor of cities from poor housing was especially dwelt upon. In Dublin 2,700 houses had been tenanted and closed—about 1,000 of them never to be reopened—without any compensation to the owners. If a municipality was wealthy it could do no better work than providing good dwellings for artisans and laborers. The results of recent investigations in reference to the composition of sewer air showed that it was superior, bacteriologically at least, to ordinary air. It could easily be understood that in the case of well-constructed and constantly flushed sewers the air would not differ from ordinary atmospheric air. It was the emanations from stagnant sewage in ill-kept sewers that were to be dreaded. There was a very general belief that typhoid fever was almost wholly propagated through the media of water, food, and sewer air; but he believed that the greater number of cases arose from the *materies morbi* of the disease being absorbed from the air. Up to the present time pathogenic micro-organisms had not been frequently detected in the atmosphere, but neither had they been found, except rarely, in water or milk suspected to have produced disease. He believed that typhoid fever was a disease of the miasmatic class, and that it became endemic in certain localities in which the conditions of the soil were favorable to the development of the micro-organisms that caused the disease. Notwithstanding the great and continuous increase of its urban population, Great Britain grew healthier and healthier from decade to decade. Among the various influences which had contributed to bring about this exaltation of the national health the work of the British Medical Association had not been least effective.

The Origin and Spread of Typhoid Fever.—Mr. H. R. Kenwood read an interesting paper on this subject before the Section in Public Medicine at the recent meeting of the British Medical Association. In it evidence was adduced in support of the view that typhoid fever might spring from acute diarrhœa, more especially of the epidemic summer type, and that the specific organism might proceed from the *Bacterium coli commune*. With regard to the bacteriological evidence he asked, Was Eberth's bacillus the *vera causa*? If so, were we justified in assuming that it could proceed from an evolution of *Bacillus coli commune*? There was evidence that even greater changes than were represented by the slight differences between the Eberth-Gaffky bacillus and the *Bacillus coli commune*, both functional and morphological, might be artificially induced in bacteria. Again, in typhoid there were many other bacteria possessing characters which filled up the narrow gap of difference between the two organisms in question. As to the clinical evidence, it all pointed to the closest relationship between typhoid and acute summer diarrhœa, if the two conditions were compared in those age periods upon which typhoid and acute summer diarrhœa both had a fatal incidence (that is, in child-

hood). Further, he urged that the morbid anatomy of the two conditions fully supported this contention. The epidemiological evidence tended to establish a close similarity between the respective mortality charts, and a rise in the typhoid mortality was preceded by a rise in the diarrhœal. The autumnal rise of typhoid fever in the fourth quarter was always preceded by a summer rise in diarrhœa in the third quarter, quite irrespective of the varying climatological conditions of different years, and generally when one was high the other was high, and *vice versa*. Mild unrecognized types (diarrhœa, ambulatory typhoid) frequently accounted for the origin and spread of typical typhoid fever. Mild types were due to the fact that the community was susceptible to the virus in varying degrees, and there was a considerable amount of natural and acquired immunity. Personal experiences were related of mild cases giving rise to typical and fatal typhoid fever; and cases were mentioned in which antecedent "diarrhœa" had been the only discoverable cause. The chemical analysis of water remained a valuable means of gauging the probability of typhoid infection. Bacteriological methods, when applied to water, were unsatisfactory. The *Bacillus typhosus* in drinking water must always be accompanied by some fecal contamination, however slight, and this a careful analysis should detect.

Some of the Characteristics of Disease in Childhood.—

At the recent meeting of the British Medical Association an interesting paper with this title was read by Dr. William H. Dickinson before the Section in Diseases of Children.

The author stated that an obvious physiological condition underlay the pathology of childhood. In the period of growth the processes of nutrition were necessarily more active than when the fabric was stationary; the demand was greater, and returned at shorter intervals, and any failure in supply was more immediately and more severely felt. Young children and boys and girls were often insufficiently fed; they wanted more than their elders, and generally got less. The substantial late meal, formerly called supper, now dinner, was perhaps not exactly suited to childhood, but there should be some substitute for it. He had often thought that schoolboys were not fed well enough, and that not from want of means, but want of knowledge. Having referred to the special need of warmth in infancy, he dealt with the effect of alcoholic drinks in childhood, and said the younger the child the more harm they did. Having dwelt upon other disorders, he said that children were more immediately affected by aerial influences, whether good or bad, than grown people. The greater susceptibility of the young to malaria was well known. Pure air, and especially sea air, was, as regarded the chronic ailments of childhood, their greatest remedy; it was to be regretted that it was not more constantly at their command. Papers were read before this section by Dr. W. P. Northrup, of New York, upon Intubation of the Larynx, and by Dr. Henry D. Chapin, of New York, upon A Plan of Infantile Measurements.

A New Test for Morphine.—The *Presse médicale* for July 28th publishes an abstract of a note on a new reaction by morphine, by M. Lancal, published in the *Bulletin de l'Académie de médecine de Bruxelles* for May 26th. This reaction is said to reveal the presence of morphine and oxymorphine in a solution of the strength of 1 to 20,000. A few drops of the liquid to be examined are placed in a porcelain capsule, and then there is to be added an equal volume of a solution of thirty parts of uranium acetate and twenty parts of sodium acetate in 1,000 of distilled water. The mixture is then to be evaporated over the water-bath. If the liquid contains morphine, there remains a prominent deposit in the form of brownish-red or orange concentric rings.

Lectures and Addresses.

NEUROLOGY AND GENERAL MEDICINE: PROGRESS IN NEUROLOGY;

RELATION BETWEEN CLINICAL TYPES, AS ILLUSTRATED BY
MULTIPLE SCLEROSIS AND PARALYSIS AGITANS.

BEING THE PRESIDENTIAL ADDRESS
DELIVERED BEFORE THE AMERICAN NEUROLOGICAL ASSOCIATION,
May 30, 1894.

By B. SACHS, M.D.,

PROFESSOR OF MENTAL AND NERVOUS DISEASES IN THE NEW YORK POLYCLINIC;
CONSULTING NEUROLOGIST TO MOUNT SINAI HOSPITAL.

GENTLEMEN: I am deeply sensible of the honor you have conferred upon me in asking me to preside over your meeting of this year. The American Neurological Association has won an enviable reputation for the seriousness of its work, the earnestness of its discussions, and the scientific attainments of many of its members. According to the programme spread before us the deliberations of this year promise to maintain the high standard of the past, and there is every indication that the members of this association are abreast of the most important advances in neurological science, and that they are ready to aid in the solution of the burning questions of the day. It will not do for me, however, to praise this meeting in advance of its actual performance. You will have much more reason to be grateful to me if I keep you as short a time as possible from the full enjoyment of the feast.

But our meeting this year as a part of the larger congress affords the opportunity, which I wish to improve, of jotting down a few general reflections on the relation of neurology to the general body medical. It is truer of medicine at the present day than it ever was, that "it is the healing art," and the admonitions that are sounded from time to time to be ever mindful of this are not needed; for by the necessities and experience of our daily lives we are constantly awakened to a sense of our duties as physicians to the sick. I yield to no one in the appreciation of therapeutic efforts, but we would quickly exhaust our resources and make a sad waste of body and of mind if we did not seek physical rest and mental recuperation by our devotion to the *science* of medicine. From the scientific point of view clinical medicine and neurology are one and inseparable. The diseases which the neurologist is called upon to recognize and to treat are such that he must necessarily maintain a deep interest in the affections of the heart, of the liver, of the stomach, and surely of the kidneys. He can not afford to neglect the lungs, nor even the bladder. He is asked, perhaps a little too frequently, to consider the condition of the generative organs, and he must be even better versed than the surgeon in the anatomy of nerves and muscles. The eye, the ear, and that poorest of all the special organs, the nose, have claims upon him. The entire organism is his daily concern, although he claims to be more intimately acquainted with the structure and functions of the nervous system than with any other part. I think it a fortunate matter that we prac-

tice a specialty which can not and should not be divorced from general medicine. The latter does not always include neurology, but neurology is nothing without general medicine. And likewise, not every medical man is a neurologist, but every neurologist should be a student of general medicine in the broadest sense of that term.

During the past twenty years many of the greatest clinicians have won their laurels in neurology. The names of Charcot, of Hughlings Jackson, of Leyden, of Kussmaul, of Nothnagel, of Erb, of Strümpell, of Lichtheim, and of Leube, who by his recent excellent work may be considered the latest accession from the ranks of general medicine to neurology, all these and many more will occur to you. The study of nervous diseases proved to be the most fertile field to such men as these, who were well equipped for any medical work. They were general clinicians at the start and became neurologists by dint of serious work and long-continued investigations. The specialty as represented by these men is a plus over medicine, and not an unknown quantity, or a little special knowledge minus general medical learning. Only a few years ago, after the rapid development of bacteriology and medical chemistry, it was to be feared that the greater medical minds would turn to these special sciences, but no marked changes have been wrought as yet, and the great workers in medicine to-day are still the very men whom we may well consider the foremost exponents of our special science of neurology.

What I have said is absolutely true of neurological science in Europe, and particularly in Germany. In this country, and I say it with due deliberation, medicine has not reached up to the level of neurology. And yet a distinct effort has been made, whether intentional or not, to exclude neurologists as such from the regular fold of general clinicians.

American clinicians, with very few exceptions, have not studied neurology, at least not seriously, and neurological knowledge, we all know, does not come by intuition. Every one of us feels that it has required years of careful work in anatomy, in physiology, and in pathology of the nervous system to enable us to do justice to the special diseases that come under our notice. With no desire to claim superiority on our part I maintain that we have a right to ventilate this grievance of which I speak, and not on merely personal grounds either, for the rule which excludes neurologists from general hospital service does harm to the cause of American medical science. The vast neurological material of our hospitals is not properly utilized for purposes of investigation or of instruction. Some of us, to be sure, by the grace of God and other specialists, have been accorded privileges as consulting physicians; a few, I am aware, have large hospital services at their command; but these few exceptions prove the rule that our hospitals do not contain wards for the treatment of nervous diseases, and that patients afflicted with these diseases do not receive the care and treatment which the present state of neurological science warrants. We can not force ourselves upon these mighty representatives of general medicine, but we can at least exact of them that they acquire a thorough

knowledge of neurology, so that patients in hospitals and other institutions may have the advantage of specially trained medical attendants. I am certain that this association will welcome any general clinician who will step into our specialty, and show by the work he offers that he wishes to consider neurology a part of general medicine. I have touched upon this subject because it has for years seemed to me to point to a serious duty which every one of this association to-night might take upon himself to perform in his respective city, and every fair-minded man will pardon this slight vein of egotism as soon as he realizes that the recognition of neurological science as such will redound to the credit of American medicine.

Whether or not the general clinicians will help us in our efforts after scientific truth, whether or not they provide us with opportunities for clinical research such as hospitals alone afford, we have the satisfaction of knowing that many important discoveries have been made within the past few years in the domain of neurology, and that American neurologists contributed to this advance. As a result of what clinical investigation alone will afford, I beg you to consider the great strides made in the recognition of cerebral diseases, and to note here the happy effect of the co-operation between the clinician and the surgeon. In spinal-cord diseases accurate clinical investigation alone, supported, to be sure, by researches in morbid anatomy, has led to great precision in the distinction between the various forms of myelitis. It has placed syringo-myelia, amyotrophic lateral sclerosis, and syphilis of the spinal cord on a par with the best-known spinal-cord affections.

With the accurate knowledge that has now been acquired of the muscular dystrophies by clinical methods chiefly, we have still further evidence of what has been done in this direction. In the domain of peripheral and functional diseases important advances have been in the recognition of the association of these troubles with constitutional diseases, such as diabetes and phthisis, and their relation furthermore to organic and inorganic poisons. But as I survey the general field of neurology I am struck by the importance of a few discoveries which bid fair to inaugurate a new era in clinical neurology.

For years past the neuro-clinicians and the neuropathologists have worked hand in hand, and have developed our knowledge of systemic diseases of the brain and spinal cord. On the lines laid down by these investigations we have adopted and have become accustomed to a careful classification of all diseases of the central nervous system according to the involvement, by the morbid process underlying them, of certain divisions of the gray matter, or of distinct systems of white fibers. Amyotrophic lateral sclerosis was about the only chronic disease in which both the gray and the white matter seemed to be simultaneously affected, though the question has not yet been settled whether the gray or the white matter is invariably the first to be affected. Clinicians and pathologists have had to step aside for the time being to yield the palm to the brilliant researches of the anatomists, who have not only taught us new truths, but have also called a halt upon the too precise differentiation between diseases of the gray and

white matter. The careful microscopical studies of Golgi, of Ramon y Cajal, of Kölliker, and of others seemed at first to produce nothing more than an elaboration of detail in structure of the nervous system, which promised to make confusion worse confounded rather than to shed light upon our clinical studies. But the conception of the neuron which has been evolved from these studies is a far-reaching one, and one which will be certain to exert the greatest possible influence over the study of nervous disease within the next decade. It is nothing new to think of the ganglion cell as a nutritive center for the white fiber connected with it, and to know that this white fiber is apt to undergo disintegration if separated from its nutrient cell; but it is new to learn that the entire nervous system is made up of such units of nerve structure consisting of a nutritive cell, of the white fiber that emanates from one process of this cell, and of its termination in brush-like fashion. It is new, too, that these units are connected with one another not by direct contact; that the terminal arborizations approach one another without actually coming into contact; and that these neurons connect the white and gray matter, and pass freely from one to the other, or may exist even within the gray matter alone. If the nutrient cell is destroyed, or its influence over the fibers connected with it is interfered with, the death of this neuron is the natural result. While I think it is rather premature to allow this doctrine to upset our former conception of systemic diseases, and while we are not yet prepared, as one German author has already done, to speak of neuron diseases, it will help us to understand many combined diseases which we have not hitherto been able properly to explain. It will help also to a better understanding of the degenerations which follow disease of the gray matter, whether it be in the cortex or in the spinal cord, and it will help us to understand the development of systemic disease of the spinal cord, the origin of which we could not explain. The physiologists have inclined to the view that there is no such thing as a primary degeneration of the white fibers; the anatomists have now given us evidence that the position of the physiologists is absolutely correct, and it will compel us to extend our studies of all systemic diseases to the gray matter with which these white tracts are directly or indirectly connected. In the case of tabes dorsalis these anatomical researches practically compel us to regard changes in the spinal ganglia as the primary and fundamental ones, and I have no doubt that with regard to multiple cerebro-spinal sclerosis, and with the various forms of combined sclerosis, similar investigations will be needed. We can not be satisfied with the simple recognition of these systemic diseases, but must look to the original causes leading to these secondary changes in the white columns. The newer anatomical methods, particularly those of Golgi, of Cajal, of Nissl, and, I am happy to say, of Van Gieson, also, will enable us to carry on such studies with considerable promise of success, and they refer us once more to the necessity of exhaustive studies regarding the nerve cell, its intimate structure and connections, at the same time restoring the ganglion cell to the dignity which it occupied in neurological science until very recent years.

These recent anatomical achievements will apply the corrective to clinical views in neurology that have obtained for many a day. Having learned in former years to differentiate between gray and white matter, we have created such a gap between the two that it has widely separated diseases affecting one or the other tissue. The discovery of the neuron proves once more that the artificial limits set up by man in his study of disease do not exist in the natural order of things. In the case of amyotrophic lateral sclerosis we can now understand how it is possible that both the white and the gray matter may be affected simultaneously or successively; but the lesson will be a most instructive one with regard to the relation between the spinal form of progressive muscular atrophy and the primary dystrophies. All of you will remember that many have been at work for many years endeavoring to establish the points of diagnosis between the spinal forms and the primary muscular diseases. After clinical studies we are brought face to face with the fact that the more we attempt to differentiate these diseases, the more likely we are to come upon cases which seem to fit into both categories. Spinal progressive muscular atrophy was supposed to be non-hereditary; dystrophies distinctly hereditary. But the recent publications of Hoffmann and Strümpell proved that the spinal form of progressive muscular atrophy is not only hereditary, but that it often begins very early in life. Here the conception of the neuron seems to me to step in in a very happy manner, for it points to the fact that, though the gray matter of the cord, the anterior nerve roots, and the peripheral nerves—not to mention the muscular fibers to which the nerve is distributed—were far apart in an anatomical and physiological sense, they practically constitute a nerve unit, and that the same causes which at one time affect the proximal end of this unit may at another time and in another person affect the distal portion, which helps us also to understand why, in cases of toxic poisoning—as by lead, for instance—the poison should in some persons produce a form of multiple neuritis, whereas in others it causes a distinct myelitis of the gray matter of the cord, and in still other instances the poison will produce a combination of neuritis and myelitis.

The purely anatomical conception of the brain and spinal cord diseases was not only natural but absolutely the best for a long time to insure careful recognition of the various forms of disease of the central nervous system, and we have not finished with that method yet, for I have no doubt that new forms of disease will be recognized and established. But the time has come to look beyond this narrow horizon, and to seek for the causes that lead to diseases of varying anatomical distribution. In this direction the study of hereditary diseases as such, the attention that is being paid to family affections the world over, seems to me to promise much for the future. When we shall have discovered the actual hereditary condition which causes the arrest of development or a morbid development of various parts of the neuro-muscular system, we shall have made a great advance upon our rather crude though strictly anatomical conceptions of the present day.

The newer anatomical studies to which I have alluded

will also have the further advantage of helping us to take a large number of diseases which we have supposed to be purely functional out of this unsatisfactory category. This is practically true of epilepsy, and I believe that it will soon be true of chorea, and possibly of paralysis agitans.

In pleading for the continuance of anatomical studies, I do not wish, however, to discourage the study of medical chemistry, and above all of bacteriology in connection with neurology, for much is to be expected from all these sciences; but do not neglect anatomy, and in order that we may further these special studies let me urge once more the great need of large clinical opportunities, and the establishment of laboratories in connection with clinical service for the advanced study of the normal and morbid histology of the entire nervous system.

If I have not trespassed too long upon your time I will venture to add a short discussion of another subject that seems to me to be of some interest, as it proves the connection between two diseases that are supposed to be entirely distinct—the one a disease due to organic changes, the other a purely functional disease. I refer to these spinal diseases for the further reason that the suspicion which is strong on clinical evidence only may soon be placed on a safe anatomical basis with the aid of the more recent methods of study. The cases I wish to refer to will help to bring out the close relationship between multiple sclerosis and paralysis agitans. That the latter is a cortical disease was rendered probable by Westphal's case in which the tremor stopped after an attack of hemiplegia. Stated briefly the main points of these histories are as follows:

The first case is that of a young man, twenty years of age, whom I first examined in the winter of 1892. There was no history of any serious nervous disease in the family. The patient fell at the age of five years, and had an attack of convulsions with loss of consciousness, which was followed by a slight weakness of the legs; but from this condition he rallied

rapidly enough, and was entirely well, exhibiting a good physical and mental development. He was bright in school and perfectly well until the age of fifteen, when he met with an-



other accident. He fell from a carriage and was badly frightened. The first symptoms he noticed were pains around the left ankle, followed quickly by a shaking of the left leg. After that the arm began to shake. Five months later the same symptoms occurred on the right side. On examination I found the boy extremely well nourished; muscles in good condition; color of skin normal, but considerable vaso-motor disturbance. I was struck by the mask-like expression of his face, by the peculiarity of his speech, and by the rhythmical tremor of the hands, legs, and head, which left no doubt in my own mind that the boy was suffering from paralysis agitans.

But after a little while another set of symptoms appeared which seemed to show that this senile disease when occurring in a younger individual was subject to peculiar modifications which allied it much more closely to multiple sclerosis, a disease common in earlier life.

The boy became affected with characteristic nystagmus and scanning and tremulous speech, and all the reflexes became greatly exaggerated. At the same time he retained the characteristic tremor of paralysis agitans, the tremor involving the head, lips, and even the tongue. To this day propulsion is a very marked symptom of his condition. The hands have the characteristic position of paralysis agitans, and the contractures are very much like those seen in the senile form of this disease. He is now able to walk about very little, and with the combination of symptoms that we are accustomed to associate in part with paralysis agitans and in part with multiple sclerosis he presents a peculiar picture indeed.

The second case was that of a woman, aged thirty-two years, who was at one time supposed to be simply hysterical. Her present disease began fully ten years ago after a severe worryment. There was a general muscular weakness and tired feeling. She afterward met with an accident, falling down stairs, and immediately after developed a shaking and trembling in the lower extremities. Four weeks later the trembling extended to the upper extremities. Three years after that she developed the characteristic impairment of speech. At the present time her symptoms point chiefly to a multiple sclerosis. She has a very characteristic scanning speech, and the tremor becomes markedly exaggerated on intention. She has slight disturbances of the bladder and rectum, but there is no nystagmus in her case, and there is no increase in the reflexes. The ordinary tremor comes to a standstill as soon as she ceases using hands or feet, but there is a constant rhythmical tremor of the head, which reminds one of paralysis agitans, and the position of the body is typical of the disease. She, too, therefore, combines symptoms of both diseases.

The third case, also in a woman, is marked by very much the same symptoms. The patient is a lady aged thirty, who had been under the observation of a number of celebrated specialists abroad. The only thing in her history worth noting is that her father died of tabes at about fifty. In her case, too, the tremor began after serious excitement, first in the right hand, and then passing into the right leg, and now is present in all four extremities, though more markedly so in the right hand than anywhere else. She is unable to write distinctly, and, while at one time an excellent pianist, is compelled to give up playing altogether.

My first examination of her was made exactly two years ago. At that time I noted that the right hand and arm trembled a little while at rest, and much more so on intention. The reflexes were increased in the right upper extremity, but the knee jerks were normal and there was no ankle clonus. There was no ataxia, the pupillary symptoms were normal, and there was, in short, nothing but this tremor of the upper extremities. After this she went to Europe, and was there considered to be

suffering simply from nervous tremor. She returned about a year ago, and I found, to my astonishment, that the right hand trembled constantly, that she also had a distinct tremor of the face and head, and that there was a peculiar quivering about the lips. At the same time the face had acquired a distinct mask-like expression, and she walked with a decided inclination forward. I have kept her under steady observation, and now the tremor of the head, the tremor of the lips, and the mask-like expression of the face, and tendency to contracture in the right hand, and even a tendency to propulsion, leave but little doubt that this disease, which began as a multiple sclerosis, is now much more typically a paralysis agitans.

On another occasion I hope to present these cases more in detail; for the present I wish to establish nothing more than to show that a simple classification of diseases does not end our task in clinical neurology, and that diseases which we suppose to be fairly distinct often merge into each other, and that in the cases of the two diseases mentioned it will be the duty of neurologists not only to discover the anatomical basis of the one supposed functional disease, but also to establish the relation or identity of the morbid processes underlying it.

I should not have ventured, gentlemen, to weary you with the report of a few cases if they did not emphasize one of the points which I wished to bring out in this presidential address, that the tendency in neurology at the present time is not to multiply clinical types, but to establish larger groups of diseases based upon a knowledge of the causes and morbid processes which many have in common with one another.

Original Communications.

A CYST OF THE LARYNX CURED BY INJECTION OF CARBOLIC ACID; AND A REPORT ON MYCOSIS OF THE PHARYNX AND TONSILS.*

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CYST OF THE LARYNX.

THE following case of cyst of the larynx, because of its deep location and the fortunate results of treatment, appears to me of special interest:

Mr. D. M., aged forty-three years, came to me April 5, 1893, complaining of soreness of the throat, which he said had annoyed him, especially when talking, for about two years. He had been frequently troubled by cough, and for seven months the soreness and cough had been nearly constant. He was very hoarse, and for about a week he had suffered from almost continuous burning pain in the throat. One brother had died of consumption, but there was nothing in the patient's personal or hereditary history which seemed to account for his symptoms. His general health was good, weight normal, temperature and pulse normal. He had a deep, loose cough, and expectorated about half an ounce of muco-pus daily; the respirations were

* Read before the American Laryngological Association at its sixteenth annual congress.

eighteen; there was no dyspnoea; and the digestive and secretory organs were in good condition. He complained of occasional obstruction of the nasal cavities, and upon inspection I found the right naris two thirds and the left one half closed by swelling; however, the subsequent history showed that this was a temporary condition. Physical signs over the chest were normal. Upon examination of the larynx I found a large swelling of the left ventricular band and arytaeno-epiglottic fold, as shown in Fig. 1. This was so large that it was impossible to

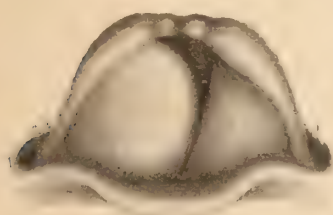


FIG. 1.

see the cord upon the left side, and the cord upon the right side was covered by what appeared to be temporary swelling of the right ventricular band. The larynx was congested about twenty-five per cent. (the normal condition being taken as a unit and the deepest congestion as one hundred

per cent.). The subsequent history showed that the congestion of the right side and of the trachea was temporary, and it was probably from the acute inflammation that he experienced the burning pain which had lasted for a week. The swelling of the left side had a smooth, uniform surface, and the appearance, excepting in the smoothness, of a solid growth; the mucous membrane being uniformly congested and at no part having the lighter color which we would expect to find over collections of fluid.

At first being somewhat puzzled as to the character of the tumor, and doubtful as to the best thing to do for the patient, I adopted palliative local treatment for the acute inflammation, consisting of astringent sprays which were applied once in four or five days, the patient in the meantime being given chloride of calcium in doses of from fifteen to twenty-five grains three times daily, with the hope of promoting the absorption of inflammatory products and possibly decreasing the size of the tumor. The internal and local remedies were followed up for about a month, by which time the congestion had disappeared from the right side, but the swelling of the left side remained as large as ever, though the mucous membrane had become somewhat paler and was not congested more than ten per cent. The mass was so firm to the touch that I feared it was a solid tumor, and thought it probable that nothing less than laryngectomy would prove of any avail. I determined, however, to try first the influence of deep injections of lactic acid. Upon the 3d of May, nearly a month after I had first seen the patient, I injected ten minims of a thirty-per-cent. solution of lactic acid; three days later, fifteen minims of the same solution; and two days later, twenty minims of the same solution. I found in making the injection that the needle felt as though it passed through four or five millimetres of firm, soft tissues into a cavity filled with fluid. This needle (Fig. 2) con-



FIG. 2.—Hypodermic needle for deep injections into larynx.

sisted of a hypodermic point attached to a stout brass tube which was fitted to a hypodermic syringe. Three days after the third injection I inserted a laryngeal lancet into the swelling and obtained a little thick, semi-transparent, grayish fluid. When the patient returned four days later I found that the

swelling was only half its former size; at this visit an astringent application to the congested mucous membrane was the only treatment. I find from my notes that the patient subsequently returned to see me about once in four or five days, and that astringent sprays were applied, but at the end of four or five weeks (June 8th) the notes state that the patient's throat was feeling badly, he was still very hoarse, and the swelling had increased to nearly its original size. At this visit I injected into the cyst six minims of an eight-per-cent. solution of carbolic acid in glycerin and water; three days later there was too much soreness to admit of a repetition of the injection, but three days subsequently fifteen minims of the eight-per-cent. solution were injected into the cyst; a week later twenty minims of a ten-per-cent. solution were thrown in; similar injections were repeated about once a week for five times, when the cyst had nearly disappeared and the injections were discontinued to ascertain whether or not it would again enlarge. He was subsequently seen at intervals of three or four weeks for three months after the last injection. On the date of his last visit my notes state that the cyst had been obliterated and there was no evidence of its recurrence. The patient felt that his throat was perfectly well. I have not seen the patient since November 20, 1893, but as at that time the larynx appeared normal, and as he had been very faithful in his treatment formerly, I feel confident that the disease was cured. I can not attribute any portion of this effect to the astringent applications nor yet to the lactic-acid injections, because it was not until I began to use the carbolic acid in strong solution that I discovered decided improvement, and then the diminution of the cyst was rapid and continuous until it entirely disappeared. From the deep-seated position of this cyst it would have been impossible to remove it by any crushing, tearing, or cutting operation short of removal of the greater portion of the left side of the larynx; therefore I felt that the patient had reason to be congratulated on the outcome of the treatment.

MYCOSIS OF THE PHARYNX AND TONSILS.

Although nothing new has been recently developed in our knowledge of mycosis of the pharynx, the comparative rarity of the disease appears to be sufficient excuse for placing on record the histories of those which have come under my observation. During the last three years I have seen among private patients twelve cases of this affection in which the symptoms and signs were typical. One of these was not treated, one was treated but once, and two but twice; therefore, in these four no results can be recorded. In the other eight thorough cauterization of the affected part with the galvano-cautery, repeated until all of the morbid masses were destroyed, effected a cure, and I believe in none of them has the disease recurred. This form of treatment appears to me thoroughly satisfactory, and, although in some cases I have adopted other measures coincidentally, I am under the impression that the good results were dependent mainly, if not entirely, upon the cauterization. In one of the first four cases, treated by the application of full-strength lactic acid, no benefit was derived. Although I have at times used the bichloride-of-mercury solution and other powerful antiseptics with various astringents, I have been unable to discover that any of them had any influence upon the disease.

The histories are as follows:

CASE I.—Mrs. K. F., aged twenty-eight, had complained of slight soreness of the throat for a month which was referred to

the region of the tonsils; the general health was good; an examination showed several well-marked mycotic patches; cauterization was recommended, but no treatment was instituted.

CASE II.—Miss C. H., aged twenty-two years, had suffered from slight catarrhal symptoms all her life, but for two months had noted whitish patches in the throat with slight soreness; the general health was good; several mycotic patches were observed upon both tonsils. Several of these were destroyed by the galvano-cautery at two different sittings, but the result is unknown.

CASE III.—J. C. H., aged twenty-seven years, complained of catarrhal symptoms and was subject to frequent colds; several mycotic patches were found upon both tonsils, three of those upon the right side being cauterized at the first visit. The patient did not return, and the result is unknown.

CASE IV.—W. A. B., aged thirty years, male. This patient had been troubled for the last three or four years with dryness and accumulation of mucus in the throat and an irritable cough; he stated that he took cold very easily; the general health was fair; appetite not very good and digestion poor when he first came to me in July, 1890. I saw him two months later and again in the following spring, and the notes show that the throat condition remained much the same, but at that time there was *no* mycosis. He called upon me February 6, 1893, complaining of some trouble in the throat, which I found to be well-developed mycosis of the tonsils. He objected to cauterization. Lactic acid was applied to these patches on two different occasions, and he was recommended to continue its use, as he desired to carry out the treatment himself. My notes indicate that no decided benefit was obtained from the lactic acid.

CASE V.—Mr. E. H. F., aged twenty-three years, came to me in April, 1891, complaining of hawking and spitting, with frequent hoarseness; the general health was fair, but he suffered some from dyspepsia. I found well-marked mycosis affecting both tonsils; two or three spots were cauterized upon one tonsil, and the treatment repeated five times at intervals of a week, when the disease had been cured. I saw the patient six months later, and no recurrence had taken place.

CASE VI.—Mr. F. M. D., aged thirty-two years, had been under my care at intervals for six years for disease of the throat and nose. He came to me in the latter part of September, 1892, complaining of hacking cough and a good deal of trouble in clearing the throat, especially mornings; this, however, appeared to be due to the collection of mucus in the nasopharynx. On examination was shown well-marked mycosis of the tonsils. His general health was fair, but I found an herpetic ulcer at the end of the tongue. An astringent application was made to the throat and soothing troches given, to be used as he might desire. For some reason, which does not appear in my notes I did not see him again for two weeks, and subsequently only about once a month for three months; on two of these occasions three or four of the mycotic patches were thoroughly cauterized, and the disease was cured. Three months later there had been no return of the trouble.

CASE VII.—Miss F. T., aged sixteen years, had been troubled with sore throat frequently for the last six years. For the past year the throat had given her much annoyance, and she told me that the white spots upon the tonsils had frequently been present during the last five years; general health good, digestion perfect; several well-marked mycotic patches were found upon both tonsils; two or three of these were cauterized at each of eight sittings at intervals of from five to twenty days, when the disease had been eradicated.

CASE VIII.—Miss M. G., aged fourteen years, had been troubled with the throat ever since early childhood, and was subject to frequent colds, but complained of no special symp-

toms in the throat; the appetite was only fair; digestion poor; general health not materially affected. Several well-marked mycotic patches appeared on both tonsils and on the base of the tongue; from two to four of these were cauterized at each of eight sittings, at intervals of about a week, when all of them had been destroyed. I have reason to believe that there was no recurrence, though the proof is not positive in this case.

CASE IX.—Mr. J. H. P., aged sixty-three years. This patient had been under my care at intervals for six years, and had consulted me for neuralgia and general debility about two months previous to the discovery of the mycosis. At that time there was no evidence of the throat disease, though the parts were carefully examined. In July, 1893, I found well-marked pharyngo-mycosis. The throat was cauterized six times, at intervals of from five to seven days, two or three spots being treated at each sitting; the disease was cured. I saw the patient six months later, and there had been no recurrence.

CASE X.—Miss S. F., aged seventeen years. This patient had been under my care at intervals for about two years, but had complained of slight soreness of the throat for only a month preceding the discovery of the mycosis, which was well developed on both tonsils. The disease was cured in four treatments, three or four points being cauterized each time, at intervals of from one to two weeks. She has not since reported, and, inasmuch as she had formerly come to me whenever the throat gave her annoyance, I believe there has been no recurrence.

CASE XI.—Mr. F. A. P., aged thirty-four years, stated that he was subject to frequent sore throat, and that he had seen yellow spots in the tonsils at intervals for several years. I found him suffering from laryngo-tracheitis, the general health not materially affected and the digestive organs normal. It is noted that at first the tonsils were somewhat swollen, with several diseased follicles, and it was not until two weeks later that mycosis was discovered. From two to four places were cauterized at each of six sittings with intervals of from five to ten days between treatments. At the end of this treatment the disease had been cured. In this case I feel confident that the disease was not present when he first visited me, but I am equally confident that it was well developed about three weeks later. There has been no recurrence.

CASE XII.—Mr. E. F. W., aged forty-one years. This patient had been under my care at intervals for several years for nasal and throat trouble, and I had seen him about six weeks before the discovery of the mycosis; at that time he did not complain of the throat, and my notes do not show whether or not it was examined; but, from the fact that he had frequent trouble with the pharynx and that it was customary always to examine his throat, I am under the impression that there was no trouble at this time. When the patient last consulted me for his throat I found him somewhat debilitated and annoyed by well-marked mycosis. Ten cauterizations were needed to effect a cure. They were made at intervals of from five to fourteen days. There was no recurrence.

An examination of these cases shows that in seven, or in fifty-eight per cent., the patient had for many years frequently suffered from sore throat; that in eight, or sixty-six per cent., soreness of the throat had been present from four to eight weeks, and that in only one, or eight per cent., was there distinct evidence of previous follicular tonsillitis. In one there had been specific sore throat; one was suffering from general debility, though not very pronounced, and in three, or twenty-five per cent., symptoms of dyspepsia were present, but in fifty per cent. it is stated that the patients were in general good health. It is shown that

in all of my cases where the throat was treated by thorough cauterization, which appears to me to be the most effective method, the mycosis was cured and I believe it has not returned in any. I am certain there has been no return of the affection in any of the patients that I have seen since the treatment.

In these cauterizations it has been my custom to destroy the diseased mass and to burn about an eighth of an inch into the tissue beneath it; to cauterize two or three patches at one time, and to repeat the operation, if convenient for the patient, two or three days after all soreness from the former operation had disappeared. In two or three cases I have given sprays of bichloride of mercury or other antiseptics, but generally have ordered nothing of the kind. Where there has been general debility tonics have been given; and where digestive disorders were present, nux vomica, the hydrochloride of hydrastine, quinquina, and papain have been commonly prescribed. In some cases I believe that the disease exists for many years before it is discovered, but in most of the cases that I have observed it has apparently been of only a few weeks' duration. In two of the cases, which were not treated more than once or twice, I am under the impression that the remainder of the disease has gradually disappeared from natural causes, because it occurred in patients who would have been almost certain to return for treatment if any white spots could be seen by them in the throat.

34 AND 36 WASHINGTON STREET.

A MONSTROSITY:

XIPHOPAGUS, EXSTROPHY OF THE ABDOMINAL VISCERA, AND CLUBFEET.

By LETITIA A. WESTGATE, M. D.,
SYCAMORE, ILL.

On June 3, 1894, Mrs. D. gave birth to a pair of dead twins united at the xiphoid cartilage. There was complete

extrophy of the liver, intestines, and stomach of each fetus. These organs were united in the median line and completely enveloped, as shown in Fig. 1. The same illustration shows the position of one of the cords; the other passed down, on the opposite side, in a similar manner, between the layers of the membranes enveloping the abdominal parietes. Fig. 2



FIG. 2.

shows the viscera with their covering removed. The placenta was single, oval in shape, and measured four inches in its longest diameter. Each fetus was enveloped in a separate amniotic sac. About a pint and a half of fluid escaped when the first sac ruptured. An hour later I ruptured the second sac and obtained about the same amount of fluid. Each fetus measured nine inches and a half in length and had one clubfoot. Age, about six months; sex, females. Head presentations.

I have the specimen preserved in alcohol. It was slightly uncerated, as death had occurred *in utero* some time previous.

A STENOSING CARCINOMA OF THE TRANSVERSE COLON.

EXCISION. MURPHY-BUTTON ANASTOMOSIS (END TO END).

By MORRIS MANGES, M. D.,

ASSISTANT VISITING PHYSICIAN TO MOUNT SINAI HOSPITAL.

AND HOWARD LILIENTHAL, M. D.,

ASSISTANT VISITING SURGEON TO MOUNT SINAI HOSPITAL.

JULIUS C., fifty-one years old, salesman, came under my care on May 26, 1894. His family history was negative. For ten years he has had more or less discomfort from his stomach. Two years ago he had a slight left hemiplegia.

His present trouble began fourteen months ago, when he was sick for four months with what was called typhoid fever. After that he was treated for a year for intestinal indigestion. In spite of all treatment and diets, the pains from which he suffered were not relieved, so that for the past five months he has had hypodermic injections of morphine twice daily.

The pains were very variable; they often came on after a good night's rest, even while in bed; sometimes any slight exertion would bring them on. Most frequently they appeared after meals (usually several hours) and preceding or following stools.



FIG. 1.

The pains were colicky in character, and usually began somewhat to the left of the umbilicus, and radiated upward and to the right; when standing, they shot backward. They were always accompanied by a good deal of rumbling in the bowels and the passage of very offensive flatus.

The stools were always constipated, so that he had to resort to cascara and enemata. Formerly they were "crumb-like," but never scybalous or flattened. The evacuations themselves were not painful, except when there was occasionally some rectal irritation from small external hæmorrhoids. There was never any hæmorrhage from the bowels.

In July, 1893, there was continuous vomiting for two weeks. Since then it would occur on very slight provocation, but during the past two weeks this feature has been less marked. No hæmatemesis.

His diet had been restricted, yet he asserts that he could digest his food fairly well, and that what he ate had no effect upon the pains. In fact, he had been kept upon a milk and then on a fish diet for two months, without obtaining any relief from the pains.

His treatment before I saw him consisted of pancrobin, pancreatin, and all the various ferments, intestinal irrigation, etc.

Examination, May 26, 1894.—The patient is somewhat emaciated, walks bent forward and uses a cane. Heart and lungs negative. The rigidity of the abdominal walls renders examination difficult. Liver and spleen normal. The lower border of the stomach does not reach umbilicus; no succussion. Tenderness, especially to the left of the umbilicus. No glandular enlargements. Spine is not tender; pupils normal in size and reaction; patellar reflexes lessened. Temperature normal. Urine, specific gravity, 1.010; faint trace of albumin; no casts.

29th.—Comes into office with attack. The pain is more stationary to-day and is restricted to the left side of abdomen, and is especially along the colon at the level of the umbilicus. Had retained oil enema all night, but it came away without any stool. Visible intestinal peristalsis and many borborygmi.

June 1st.—For the first time abdomen is soft enough to permit thorough palpation. A distinct hard tumor, about the size of a hen's egg, can be felt in the left umbilical region; it is quite painful and is transversely situated at the level of the umbilicus and about two inches to the left of it. It is freely movable laterally. Marked intestinal peristalsis.

7th.—Inflation of the rectum and colon negative, as the injected air caused so much pain that it could not be retained. The above-described mass can be distinctly felt, and can even be moved to the right of the umbilicus.

10th.—Admitted to my service at the Mount Sinai Hospital. Ewald test breakfast expressed after an hour; 40 c. c. obtained; contains no free hydrochloric acid; faint trace of lactic acid; total acidity, 0.10 per cent. HCl; no starch or dextrin reaction; trace of peptone. Inflation of stomach does not show any marked dilatation.

15th.—Transferred to Dr. Lilienthal's service for operation.

In determining the nature of the tumor several factors would indicate malignancy—viz., the age of the patient, his somewhat cachectic appearance, and the hardness of the mass. On the other hand, the slow growth and the absence of enlarged glands were against this assumption; yet in abdominal carcinomata this is of less significance than it would be elsewhere, for enlarged mesenteric glands are usually beyond the reach of the palpating fingers.

As to its site, the entire clinical picture is that of a stenosis at some point in the intestinal tract, as shown by the colicky pain, the increased peristalsis, borborygmi and

constipation. Is the stenosis due to a lesion in the wall of the gut or to the pressure and adherence of some omental growth? The superficiality of the tumor might indicate the latter; but this was evidently not the case here, for there was only a single nodule and ascites was absent. The lateral mobility, also, spoke against the omental location. It was this latter feature, together with the transversely elongated shape, its situation, and the close relation of the colics to the movements of the bowels which led me to assume that the stenosing carcinoma involved the transverse colon. A cicatricial stenosis was excluded by the history and clinical signs.

The results of the analysis of the stomach contents suggested the possibility of the gastric location of the tumor; yet a more careful consideration of all the factors rendered this improbable. Judging from the shape of the mass, the pylorus would be the part involved, for the greater curvature is always infiltrated diffusely and not as was the case here. And if it were indeed the pylorus—the possibility of the pylorus occupying the left umbilical region has been shown by Osler in his recent lectures on abdominal tumors—then a marked gastrectasis with its characteristic symptoms must have been present.

SURGICAL HISTORY OF THE CASE, BY DR. LILIENTHAL.—On June 11th I saw the patient with Dr. Manges. There was a certain sparseness, not amounting to emaciation, and it would have been easy to palpate the abdomen were it not for the sensitiveness and nervousness of the man. Still, a mass as big as an egg could be made out at about the level of the navel. Its long axis was transverse as to patient's body and it could be moved to the right or to the left of the umbilicus for about two inches. It felt hard and was not tender, but after a moment's manipulation there was an intensely painful peristaltic movement with a gurgling as if gas had passed through a very narrow place in the bowel. The patient said that this phenomenon was of constant occurrence on handling the tumor. I agreed with Dr. Manges in his diagnosis and decided to perform abdominal section.

June 18th.—C. was chloroformed and a median cut was made, entering the abdomen from two inches above to about two inches below the navel. The tumor, which just before the operation had been to the left of the median line, could not now be felt, but was soon found well to the right, and on being brought into view proved to be a hard, cicatricial-looking mass in the transverse colon. The omentum, which hung very low, was firmly adherent to the mass. It was at once decided to remove the growth by resecting the diseased gut and its adherent omentum. The mesocolon contained numerous very small nodules, probably secondary to the tumor. The resection was accomplished without difficulty, but the intestinal clamps were not perfectly secure; consequently some faecal matter escaped and had to be very carefully wiped away and the surrounding intestines protected with iodoformized gauze. I desire here to acknowledge my indebtedness to the house surgeon, Dr. M. W. Ware, whose care and skill at this stage of the operation were of great value. A large wedge of mesocolon, and that part of the omentum which adhered to the new growth, was also removed, and with it, of course, the entire distal omentum; in all, the greater part of the great omentum. The tumor with four inches of colon was removed, the lines of excision being well in healthy tissue. A large Murphy button an inch and three quarters in diameter was used to approximate the ends

of the gut and, as each half of the button took up about an inch more of gut, six inches in all were removed. The button was a very "tight fit" in the colon. The two halves were pressed home as firmly as I could push them, but the mesocolic side formed so thick a mass that the halves of the button were here about one third of an inch apart with the mesocolon and gut tightly wedged between them. On the side of the gut opposite the mesocolon this defect was made up by the spring cup of the Murphy button. This spring gave me some concern, for I feared it might not be strong enough to hold the ends of the intestine well in apposition. At one spot opposite the mesocolon I had not cut the free ends of the gut quite close enough, and, fearing the interposition of a bit of mucous membrane, I broke Dr. Murphy's rule and re-enforced with three Lembert sutures. The excision and approximation of the gut took not longer than six or seven minutes. The abdomen was now completely closed and the patient left the table in fair condition.

On the next day the temperature rose to 102° F., then to 103°+, but there was no vomiting or other evil symptom. The subsequent progress of the case was uneventful. The patient was kept well narcotized until the sixth day, when his bowels were moved by high enema. There was tenderness in the region of the button, which, by the way, could be easily felt through the belly wall as a laterally movable body. After the tenth day full diet was permitted. The pain which was complained of before operation had entirely disappeared.

On the eighteenth day following operation, Dr. T. D. Tuttle, the house surgeon, at my direction performed massage from right to left over the colon. About two hours later an enema was followed by a stool containing the button, which, in spite of its great size, was passed without pain. The following day Mr. C. was discharged from my service recovered.

On August 16th the patient reported himself as much improved in general health. He had gained five or six pounds and looked well. He was still slightly constipated, but his bowels were easily regulated by cascara. There had been absolute freedom from pain.

Examination of the specimen by Dr. F. S. Mandelbaum, assistant pathologist to the hospital, revealed the structure of cylindrical-celled adeno-carcinoma—apparently a degenerated adenoma. It was hard and cicatricial in character and had closed the gut so that its lumen was only large enough to admit a lead pencil.

I can not close this report without adding my testimony to the mass already extant in appreciation of Dr. Murphy's beautiful instrument. The drainage holes and the spring cup guarding against all accident not the result of carelessness make success in enterorrhaphy almost certain.

Medical Coeducation.—Speaking of coeducation at the Johns Hopkins Medical School, in the course of a speech made after the recent annual dinner of the Harvard Medical Alumni Association (*Boston Medical and Surgical Journal*), Dr. William Osler said: "I was warmly in favor of it, particularly when the ladies came forward and offered half a million of dollars. I come here to-day, with tears in my eyes and sorrow at my heart, to tell you that coeducation has proved an absolute failure, from one standpoint. When I tell you that 33·3 per cent. of the ladies, students, admitted to the Johns Hopkins Hospital at the end of one short session are to be married, then I tell you that coeducation is a failure. If 33·3 per cent. fall victims at the end of one session, what will happen at the end of the fourth?"

A CASE OF MEASLES, WITH SYMPTOMS SOMEWHAT SIMULATING THOSE OF PHENACETINE POISONING.

By LACHLAN TYLER, M. D.

It would seem that the marvelous potency of the pharmaceutical derivatives of coal tar, at present in such general favor, should be sufficient to arouse the responsible physician to an unusual degree of alertness as to any deleterious effects upon the human organism which, when prescribed internally, they might naturally be expected capable of producing.

This proposition merits statement all the more vigorously when applied to their administration in no haphazard manner, but especially with a well-considered purpose of counteracting certain recognized pathological tendencies or conditions in existence.

Taking everything into consideration, it is quite remarkable, in connection with the therapeutics of the subject, that death in certain cases has not oftener been suspected of being the culmination of their use rather than, on the other hand, that they probably exerted the effect of at least postponing the occurrence of such a dire calamity. In short, were it not for the results obtained from the extensive experience possessed in their employment, to the contrary, it would be almost incredible that, in doses ordinarily recommended, they should be so much less liable to produce evil than good.

Amid the complexities of a given instance of disease it is practically impossible to clearly define that which may be designated the negative action of remedies employed. Observation and experience have too often avouched the efficiency of the *vis medicatrix naturæ*, for example, to avoid the acceptance of many apparent favorable results from artificial sources in any other than a spirit of extreme skepticism.

Matters are different, however, with the positive influence of such medicines as phenacetine, antipyrine, or their congeners, so unquestionably evinced for good, as a rule, in the control of febrile, neuralgic, and other morbid conditions; and a doubt might at times be consistently excited in the mind in reference to their connection, contrariwise, with certain symptomatic phases of an illness which, although exceptionally serious in itself, might possibly still have been exaggerated through the medium of some idiosyncratic susceptibility on the part of the patient to their action.

Such a doubt, which sufficiently often became resolved into a feeling of moral certainty, if not into an actually demonstrated fact, long since led to the acquirement of greater caution, anent the use of antipyrine (of comparatively *prior tempore* adoption in practice), in typhoid fever, for instance, in which disease it was originally given not infrequently in undoubted heart-weakening doses every few hours, according to circumstances. As more properly appreciated now, the truth is that none of these preparations is entirely safe to be repeatedly administered, particularly in exhausting diseases, in even comparatively small amounts,

unaccompanied by an adequate supply of heart stimulant—diffusible or permanent, as may be required.

When it comes to the question of using such agents as glonoin, nitrite of amyl, and the like, for the purpose of exciting the heart and general nervous system to renewed effort, it can be safely affirmed that depressants of whatever kind are positively interdicted, unless possibly from a mere speculative conclusion as to the definite limit of the threatening condition present they might be ventured upon intentionally to prevent a relapse in anticipation of their beneficial action simultaneously with the moment when the immediate danger shall have become averted.

Owing principally to its severity, the following case of measles—carefully recorded, and which, at the risk of being prosaic, the writer will undertake to narrate in detail—presented features which were not only interesting as far as that disease itself was concerned, but also because of the striking resemblance the symptoms bore in many respects to those which are quoted as having been observed in poisoning by phenacetine. Indeed, had somewhat more of the drug been given than on the average of twelve grains and a half per diem, in divided doses and at considerable intervals of time for the period of nearly four days, a mental problem might have been evolved regarding the true cause of death—*i. e.*, whether it was directly due to the complications resulting simply from the disease, to the remedy, or to a combination of the two. As it was, however, the idea that the phenacetine conducted in any material way to the end could not, except as a mere suspicion, have been rationally entertained for more than a moment.

Joseph V., an Italian, about thirty-two years of age, muscular and exceptionally well nourished. No history previous to coming under treatment at 6 P. M. on April 14, 1893. The eruption of measles remarkably well displayed, particularly on the lower portion of the body, back and front, as well as on the thighs. Elsewhere its appearance somewhat simulated that of scarlet fever from being more of an erythematous character. The conjunctivæ were very much injected; the pharynx was catarrhal. There was also a great degree of jactitation and mental excitement displayed.

He was given sol. morph. sulph. (U. S. P.), one fluidrachm, to be repeated if necessary, and ordered fluid diet. At 7 P. M., temperature 103.6°; patient resting comfortably, however, and to be left undisturbed to await any further developments.

April 15th.—At 1 A. M., phenacetine, five grains; 4 A. M., slightly delirious; 6 A. M., repeated phenacetine, five grains, the fever thereby becoming reduced at 9 A. M. to 101°, while the pulse and respiration, on the other hand, became accelerated. The fever then began to ascend, however, until at 1.30 P. M. it reached the altitude of 105°, when phenacetine, five grains, and spts. frumenti, half an ounce, were prescribed, with the effect of causing its steady but not marked decline. At 6.30 P. M., Rochelle salts, half an ounce, which in the course of two or three hours produced a free evacuation from the bowels. Fearing a tendency toward reaction evinced at 9.30 P. M., the phenacetine and whisky were at that time again administered.

16th.—At 12.30 A. M., on account of restlessness, sol. morph. sulph. (U. S. P.), one fluidrachm, and sol. pot. bromid., fifteen grains, were given in combination, after which he became quiet and slept for about three hours. Upon awakening, his restlessness returned, and he was noisy, but, properly speaking

not delirious. At 6 A. M., temperature 103.4°, which moderated with great promptness upon the exhibition of the previous quantity of phenacetine and whisky. At 3 P. M. it registered 103.8°, and was again met by the drug. Bronchitis at this hour having become very evident in both lungs, and cough troublesome aggravated, a stimulating expectorant was subsequently directed and camphorated oil briskly applied to the chest. Quinin. sulph., five grains every six hours, was also prescribed.

It is not impossible that the character of attention thus shown to the bronchitis may have been the means of holding in abeyance the operation of the phenacetine. At any rate, the temperature did not begin to fall until after 6 P. M.

The night was passed without notable incident other than that he slept but little, if any, although his eyes remained closed except when he was required to take the nourishment and medicines administered in routine manner, which he did without demurring.

17th.—At 6 A. M. restless to the extent of indicating a propensity to vacate the bed. Dover's powder, six grains, after which he remained quiet. At 6.15 P. M. the temperature had ascended to 104.8°, and the usual dose of phenacetine, guarded with whisky, was resorted to. Defervescence very shortly began, so that at 9 P. M. the thermometer registered 102.4°. From then until 9 A. M. of the 18th (twelve hours) the decline continued more or less steadily to 101.8°, the patient meantime receiving stated quantities of nourishment, together with the cough mixture and quinine.

During the succeeding twelve hours, however, the ascent of temperature recurred, attaining at 9 P. M. to the point of 105°. The phenacetine and whisky were thereupon given and in due season produced a fall of nearly a degree and a half. Meanwhile his respiration was moaning and he became very disquiet. At midnight, upon the repetition of the phenacetine and whisky, quietude was re-established. He apparently slept at intervals, and his general aspect, despite much in appreciation to the contrary, was for a time considered that of improvement.

At 4 A. M. of the 19th, however, temperature 104°, and the phenacetine and whisky again prescribed, but failed (as will be seen) of any salutary effect. At 5 A. M., noisily delirious and uneasy. Sol. morph. sulph. (U. S. P.), one fluidrachm, which small quantity it was deemed advisable to supplement an hour later with Dover's powder, six grains. At 6.30 A. M. patient tranquil, but shortly after lapsed into a comatose state from which it was only possible to partially rouse him. Pupils contracted. Respiration varyingly noisy or stertorous. Countenance cyanosed. Extremities cold to the feel. Hot-water bags applied, and catheter introduced. At 9 A. M., dry-cupped over front and back of chest. Hypodermic of sulphate of strychnine, one thirtieth of a grain, which was repeated two hours later (11 A. M.).

Patient had become completely comatose and reflexly insensible to puncture of hypodermic needle. He expired at 12.40 P. M. His temperature, taken *per os* one hour previously, was 106.8°.

At various times during the progress of the illness the surface was carefully sponged with alcohol and water combined.

Half an hour before death a profuse quantity of sero-mucous material was expelled through the mouth and nose, in additional testimony of the excessive degree of œdema which existed in the lungs.

The urine presented no trace of albumin at any time. Regardless of the rapidity it ultimately acquired, the pulse continued remarkably full, strong, and regular up to within one hour of death, when it began to flag and finally became intermittent, the respirations meanwhile increasing somewhat numerically.

The total amount of phenacetine administered was fifty grains, combined with four ounces of whisky, as follows:

April 15th,	phenacetine,	grains xx;	whisky,	ounce j;
" 16th,	"	" x;	"	" j;
" 17th,	"	" v;	"	" ss.;
" 18th,	"	" v;	"	" ss.;
" 19th,	"	" x;	"	" j.

Autopsy.—Performed three hours after death. Body still well nourished. Lungs oedematous and surcharged with dark-colored blood, and, upon being released, expanded prominently to view beyond the surface of the chest. Old pleuritic adhesions on both sides, but especially on the right. Stomach, liver, spleen, and kidneys congested, but otherwise normal, with exception of spleen, which was, besides, noticeably enlarged. A large white, fibrous mass occupied the cavity of the right ventricle, but no valvular or other discernible lesion was found to exist in the heart.

102 WAVERLY PLACE.

RECENT EXPERIENCES IN THE TREATMENT OF DETACHED RETINA,

WITH A DETAILED REPORT OF THIRTY-EIGHT CASES.*

BY CHARLES STEDMAN BULL, M. D.,
NEW YORK.

THE number of cases on which the following conclusions are based is thirty-eight; of these twenty-three were men and fifteen were women.

Their ages ranged from nineteen to seventy-four. There was one case between ten and twenty years; there were six cases between twenty and thirty years; six cases between thirty and forty years; seven cases between forty and fifty years; eleven cases between fifty and sixty years; five cases between sixty and seventy years; and two cases between seventy and eighty years.

The error of refraction present was simple myopia in twenty-two cases; simple myopic astigmatism in one case; simple hypermetropia in six cases; simple hypermetropic astigmatism in one case; compound hypermetropic astigmatism in two cases; and in six cases the refraction was emmetropic.

The detachment of the retina occurred spontaneously in thirty cases, and was due to traumatism in eight cases.

The detachment of the retina was preceded by more or less extensive hæmorrhage into the retina in six cases, and by hæmorrhage into the vitreous in nine cases.

A more or less extensive laceration or tear in the retina was visible in six cases, which allowed a distinct view of the chorioid through the rent.

The intra-ocular tension was found normal in fifteen cases; it was subnormal in twenty cases, and increased in three cases.

The lens was perfectly transparent in fifteen cases, but in eight of these cases peripheral opacities appeared later. In fifteen cases there were peripheral or nuclear opacities of the lens, or both, at the time of the first examination.

The vitreous was generally hazy in twenty-two cases.

There were floating opacities in seventeen cases and fixed membranous opacities in fourteen cases.

There was more or less marked degeneration of the chorioid, with interstitial atrophy in twenty-two cases.

There was iritis at some time in the course of the disease in five cases, and acute chorioiditis in one case.

The retina subsequently became totally detached in nine cases, either during the treatment or at a varying period after the treatment had been concluded.

The lens subsequently became entirely opaque in nineteen cases.

In one case an extraction of cataract was made with iridectomy before any treatment was directed toward the relief of the detachment of the retina, and with an excellent result. The wound made in the limbus healed rapidly, the coloboma remained unobstructed, the posterior capsule did not require tearing, and there was no bad effect produced on the detachment of the retina.

In one case an iridectomy upward had previously been done by another surgeon without producing any effect upon the detachment.

In one case the eye first affected by the disease, and which had subsequently become entirely blind, was enucleated by another surgeon preparatory to treatment of the disease in the other eye, but without producing any effect upon the condition of the second eye.

All the cases were subjected to the following treatment: The patients were placed on their backs in bed; atropine was instilled in one or both eyes, according to the necessities of the case, and a bandage was applied to the affected eye, and this treatment was kept up for a period varying from three to eight weeks.

Pilocarpine hydrochlorate was injected hypodermically in daily doses in twenty-five cases, beginning with a minute dose and increasing it to toleration. In a number of these cases the drug produced such unpleasant or alarming symptoms that it was necessary to discontinue it. My experience has taught me that it should not be prescribed in persons suffering from functional or organic cardiac disease.

In those cases in which *pilocarpine* was not borne well, or in those in which it was contraindicated, small doses of *sodium bicarbonate* and *potassium iodide*, largely diluted, were given, the object being to induce free action of the kidneys and bowels.

Corrosive sublimate in small doses was given in the cases complicated by iritis and chorioiditis and in all cases of extensive opacities of the vitreous.

Puncture of the eyeball through the sclera into the subretinal space was done in nineteen cases, in every instance subconjunctivally.

Division of membranous bands in the vitreous and of the detached retina, thus letting the subretinal fluid out into the vitreous chamber, was done in seven cases.

As regards the results of the above treatment, there was a temporary improvement in the vision and in the extent of the detachment, varying from a few weeks to several years, before the vision became reduced and the detachment increased in extent, in twenty-three cases.

There was no improvement whatever in eleven cases.

* Read before the American Ophthalmological Society at its annual meeting in Washington, May 29, 1894.

There was an apparent permanent cure, with entire disappearance of the detachment and restoration of useful vision, in four cases.

There was little or no reaction following puncture of the eyeball through the sclera, or after division of the detached retina and the membranous bands in the vitreous, in any of the cases. This fact I have already noticed in two papers on *The Surgical Treatment of Membranous Opacities of the Vitreous* previously published, the first one in the *Transactions* of this society for 1888 and the second in the *Ophthalmic Review* for 1890.

Conclusions.—The following brief conclusions seem to be justified by the results of the treatment in the above cases:

1. The science and practice of ophthalmology have as yet discovered no better means for dealing with detachment of the retina than the old methods which have been advised and carried out for so many years—viz., rest on the back in bed, atropine, a bandage, and the internal administration of some drug which may induce absorption of the subretinal fluid.

2. The continued use of pilocarpine, either hypodermically or by the mouth, may cause great prostration, even in cases in which it is apparently well borne; and the desired effect may sometimes be produced by small doses of bicarbonate of sodium and iodide of potassium largely diluted with water.

3. In all recent cases puncture of the sclera subconjunctivally may do good temporarily by letting out the subretinal fluid and allowing the retina to collapse, thus producing some improvement in the vision; but the apparent improvement is generally transient, and when membranous bands exist in the vitreous no improvement can be expected from simple puncture.

4. Division of fixed membranous opacities in the vitreous causes but little reaction, and may do positive good even without division of the detached retina, as it reduces the danger of extension of the detachment. It is positively contraindicated in cases where the vitreous opacity is vascularized, as it would certainly induce free hæmorrhage into the vitreous. It should never be done in an irritated or inflamed eye.

5. Division of the detached retina, which allows the subretinal fluid to escape into the vitreous, may always be done in a quiet eye, and causes little or no reaction. If membranous bands are present in the vitreous, these should also be divided at the same time.

6. In most cases all these operative procedures produce but temporary improvement, and in many cases no effect whatever is gained by them.

7. There seems no good reason for any further indorsement of the method advocated by Schöler, but every reason for rejecting it from the domain of ophthalmic surgery.

CASE I.—A. B., a gentleman, aged sixty years, was seen in the latter part of September, 1883, and was then wearing glasses of $-D. 8$. He was a teacher, and had been obliged to use his eyes constantly day and night. For more than a year he had noticed an increase in the size and number of the muscæ

from which he had always suffered, and for some weeks he had phosphenes almost constantly in the left eye. Two days before I saw him, while correcting some manuscript, the vision in the left eye became suddenly obscured, and he had not been able to read with it since. On examination, I found R. E. = $\frac{2}{20}$; with sph. — $D. 8 = \frac{1}{8}$. No improvement by cyl. gl. Vitreous hazy. Peripheral opacities in lens. L. E. = $\frac{2}{20}$; with sph. — $D. 8 = \frac{1}{8}$ eccentrically. Vitreous hazy, with fixed punctate opacities and a fine floating membrane. Retina detached in the infero-nasal quadrant and bulging somewhat tensely toward the vitreous. Peripheral opacities in the lens.

In the fundus of both eyes there was a large sclero-chorioiditis posterior completely encircling the disc, and quite extensive chorioidal degeneration all over the fundus.

There was a small irregular scotoma in the right eye, and in the left eye a defect in the field corresponding to the retinal detachment. The patient was a man of full habit, who took no exercise and suffered from habitual constipation. He was placed on his back in bed, atropine was instilled in both eyes, two leeches were applied to the left temple and a bandage to the left eye. A mild laxative was ordered to insure one loose movement of the bowels daily. Pilocarpine hydrochlorate was injected hypodermically daily, but was discontinued on the fourth day, as it produced serious symptoms of cardiac failure. In its place he was given a mixture of sodium bicarbonate and potassium iodide, largely diluted, three times a day. The pilocarpine had caused profuse diaphoresis, while the soda and potash solution produced two or three loose movements daily, so that the laxative was discontinued. At the end of three weeks of this treatment the patient had become so weak that I was obliged to let him rise from bed, and discontinue all treatment except the atropine and bandage locally. He was given tonics and plenty of good food, and allowed to walk up and down the room. The vitreous had become very clear and the defect in the visual field smaller, but ophthalmoscopically the picture was the same as before, and the detached retina still bulged tensely toward the vitreous. After a week's restorative treatment, the eyeball was punctured in the infero-nasal quadrant close to the ciliary region, and the conjunctival wound being held apart, several drops of a yellowish fluid exuded and the detachment receded. The eye was at once bandaged, and the patient kept very quiet. No reaction followed, and an examination the next day showed no detachment and a very much reduced defect in the visual field. After a week in bed he was allowed to rise and the bandage was removed. An examination showed that the detachment had shifted from a position downward and inward to one downward and slightly outward, but the vitreous was clear. The patient declined all further treatment and was obliged to resume his business of teacher, but has presented himself for examination at irregular intervals ever since. For more than a year there was no apparent increase in the detachment in spite of continued use of the eyes, but one evening, after several hours' work, the vision became very much worse, and the next morning the eye was blind. When I saw him I found a total detachment of the retina in the left eye, and this has remained ever since. The lens subsequently became entirely opaque. The right eye still remains as good as it was at his first visit.

CASE II.—T. G., gentleman, aged forty-eight years, and a teacher, was first seen on December 20, 1883. Always very myopic, and had worn the same glasses for all purposes until very recently. For about a week had noticed rapidly failing vision in the right eye, and now sees with only temporal and inferior quadrants of the retina. Examination with test types, ophthalmoscope, and perimeter showed:

R. E. V. = movements of the hand. Lens clear. Vitreous

very hazy. Annular sclero-chorioiditis posterior. Refraction about — D. 8. Detachment of the retina upward and inward, involving nearly half the circumference of the fundus. Tension normal.

L. E. V. = $\frac{5}{100}$; with sph. — D. 8 = $\frac{1}{2}$. Media clear. Extensive chorioidal degeneration.

The patient was placed on his back in bed, atropine instilled in both eyes, and a bandage applied to the right eye. Pilocarpine was injected hypodermically every day, and produced moderate diaphoresis. This treatment was continued for four weeks, the bandage being removed and an ophthalmoscopic examination made daily. At the end of the fourth week the detachment of the retina had shifted from upward and inward to downward and inward and was reduced in size. The patient was allowed to sit up in a chair and to walk up and down his room, but there was no further improvement; and at the end of the fifth week the sclera was punctured subconjunctivally in the infero-nasal quadrant, and several drops of a cloudy, amber-colored fluid immediately exuded. A bandage was applied and the patient kept in bed for a week. An ophthalmoscopic examination then showed the retina to be in place throughout, though the defect in the visual field still remained. The retina remained attached for nearly five weeks, and then returned directly downward. The patient could not submit to any further treatment as he was obliged to continue his work of teaching, and the vision slowly grew worse till about four months later the detachment became complete, and subsequently the lens became opaque. The left eye remained intact throughout.

CASE III.—Mrs. W. J., aged twenty-eight years. First seen in July, 1884. Always very myopic. Had never worn glasses regularly. One week ago noticed a cloud before the right eye, which has slowly increased in extent. An examination showed the following condition:

R. E. = $\frac{2}{100}$, unimproved. Lens clear. Floating opacities in the vitreous. Atrophic degeneration of the chorioid. Annular sclero-chorioiditis posterior. Retina detached in irregular folds downward and outward.

L. E. = $\frac{2}{100}$; with sph. — D. 16 = $\frac{2}{3}$, and reads Jaeger No. 1 at five inches. Hazy vitreous. Extensive chorioidal degeneration, including the annular degeneration around the disc.

The patient was put to bed, atropine was instilled, a bandage was applied, and pilocarpine injected hypodermically daily. The latter was borne very well and produced well-marked diaphoresis. In ten days the retina became entirely reattached and the field was completely restored. In two weeks the bandage was removed, but the patient was kept in bed a week longer, and then allowed to sit up. Vision was restored to $\frac{2}{3}$ with the correcting glass. The eye remained well for two weeks, and then without warning the detachment recurred. The same treatment was resorted to and with the same favorable result. But between July 7th and October 28th the detachment recurred five times, and on the last recurrence it extended so as to involve nearly the entire lower half of the fundus. The sclera was then punctured subconjunctivally in the infero-nasal quadrant, and quite a quantity of turbid yellow fluid evacuated, and the detachment at once disappeared. After two weeks in bed with a bandage constantly applied, the patient was allowed to rise and walk about gently. The vision had very much improved, though there was still some defect in the field. The eye remained unchanged for nearly two months, and then without warning the detachment recurred while the patient was dressing and in a few hours became total. Eight months later the lens had become entirely opaque.

CASE IV.—Mrs. S. L., aged forty-three years. First seen November 19, 1884. Has always been very myopic. During the past two years the vision has steadily failed. Has had four-

teen children, the youngest born two months ago. Just before her last confinement she noticed a clear, bladder-like body floating before the left eye. On examination:

R. E. = $\frac{2}{100}$; with sph. — D. 16 = $\frac{1}{2}$. Lens clear. Very extensive degeneration of the chorioid all over the fundus, especially around the disc. Large cobweb in vitreous.

L. E. = $\frac{2}{100}$; with sph. — D. 16 = $\frac{1}{2}$. Punctate opacities and general haziness of the vitreous. Lens clear. Detachment of the retina upward and outward, and entirely opaque. Large rent of the retina in the equatorial region upward and outward, through which the chorioidal vessels are clearly visible. Corresponding defect in the visual field.

The patient was at once put on her back in bed, atropine was instilled in both eyes, a bandage was applied to the left eye, and pilocarpine injected daily. The latter was borne very well, but after three weeks of this treatment there was no change in the appearance of the fundus. After waiting for another week, without any improvement, the detachment being in the same position, I punctured the sclera in the usual way, subconjunctivally, in the supero-temporal quadrant, and the subretinal fluid was immediately evacuated. The retina at once fell back in place, the conjunctival wound was united by a suture, and a double bandage applied. The conjunctival wound healed in twenty-four hours. The bandage was kept applied over the left eye for a week, being changed daily, and then discarded. There was no return of the detachment in this case for about four years and a half, and she was enabled to use her eyes with careful moderation for all purposes. I saw her at intervals of a few months up to April 24, 1889. The evening before, after using her strong glasses at the theater for three hours, the vision of the left eye again became suddenly obscured. The next morning I found in the L. E. V. = $\frac{1}{100}$, unimproved. Punctate and membranous opacities in the vitreous, and a detachment of the retina upward, outward, and downward, involving about three fourths of the fundus, and this soon became total.

CASE V.—Miss E. S., aged fifty years. First seen July 3, 1885. Always very myopic from early childhood. At the age of twenty, after a long illness, she suddenly lost the sight of both eyes, from what was considered to be extensive hemorrhages into the retina and vitreous. Vision slowly returned to a useful degree in the left eye, but only partially in the right eye. In May, 1885, she suddenly noticed a large dark spot in the temporal side of the field of the left eye. An examination on July 3, 1885, showed the following conditions:

R. E. V. = fingers at six feet eccentrically, unimproved. Hazy vitreous. Lens clear. Extensive old chorio-retinitis disseminata, most marked in region of macula and disc. Atrophy of optic nerve. Detachment of the retina downward and outward.

L. E. V. = $\frac{1}{100}$; with sph. — D. 4.50 = $\frac{1}{2}$ somewhat eccentrically. Faint opacities at periphery of lens. General chorio-retinitis disseminata. Vitreous clear. Structure of chorioid visible through attenuated retina. Small detachment of the retina at the extreme nasal side of fundus.

Owing to the extreme degree of degeneration in the fundus of the left eye, I regarded the case as hopeless, but the patient was put to bed, atropine was instilled in both eyes, and a bandage applied to the left eye. She had suffered from functional cardiac trouble for many years, and pilocarpine was contraindicated, so I gave her small doses of potassium iodide largely diluted, which acted freely on the kidneys and to some extent on the bowels. Much to my surprise the detachment slowly receded, and at the end of three weeks it had disappeared, the vitreous cleared up, and vision rose to $\frac{1}{2}$, at which point it has remained ever since, a period now of nearly nine years. This

patient has been seen at irregular intervals ever since, and the vision and fundus have remained in about the same condition.

CASE VI.—Señor F. F., aged forty-five years. First seen July 21, 1885.

Has always had very good vision until about a year ago, when the left eye began to fail, and vision has since steadily grown worse.

R. E. = $\frac{2}{30}$ +. Media and fundus normal. Accepts + D. 1.

L. E. = $\frac{2}{30}$ eccentrically, unimproved. Peripheral opacities in the lens. Numerous fine membranous opacities in the vitreous. Detachment of the retina downward, inward, and outward over nearly three fourths of the fundus.

From the presence of the membranous bands in the vitreous and the gradual impairment of the vision, it was almost certain that the original lesion had been a chorioiditis. As the other eye was normal, I thought it worth while to make a determined attempt to save the left eye. The patient was placed in bed, the eye was cocaineized, the sclera was punctured with a narrow knife in the equatorial region in the supero-temporal quadrant, and the membranes in the vitreous were all divided. A puncture was then made in the infero-temporal quadrant near the ciliary region, and considerable turbid fluid evacuated. Both these punctures were made subconjunctivally. The retina was partially replaced after the second puncture, and atropine was instilled and the eye bandaged. There was almost no reaction, and the vitreous showed no increase of the opacity; but after the first week there was no further improvement of the condition in the fundus. The detachment was perceptibly reduced in extent, but still occupied fully a third of the fundus. This patient was kept in bed for four weeks and pilocarpine administered, but he bore the drug very badly and I was obliged to discontinue it. There has been no perceptible change in this case for nearly nine years. The vitreous is still fairly clear and vision is about $\frac{1}{20}$, but the detachment occupies the lower half of the fundus, and tension is decidedly below normal. The other eye is still intact.

CASE VII.—Mr. D. M., aged sixty years. First seen September 16, 1885. Always very myopic. Wore the same glasses for all purposes for more than thirty years. About three weeks ago he suddenly became aware that he had lost the sight of the left eye. For some months previously he had noticed floating specks and membranes before this eye. Is a journalist and uses his eyes constantly.

R. E. = $\frac{3}{30}$; with sph. — D. 9 = $\frac{1}{30}$. Peripheral opacities in the lens. Vitreous clear. Extensive degeneration of the chorioid and large sclero-chorioiditis posterior.

L. E. = fingers eccentrically at extreme left of the field. Vitreous cloudy, with floating and fixed opacities. Retina detached in a large fold downward and inward, which partially obscures the disc.

The patient's general physical condition was bad, owing to his dissipated habits, and pilocarpine was contraindicated by reason of advanced cardiac degeneration. He was placed on his back in bed, atropine was instilled, and a bandage applied. He bore confinement very badly, and some stimulus proved constantly necessary. At the end of ten days there was no improvement, and I was obliged to allow him to rise and walk about. The condition remained unchanged for another week, and I then punctured the sclera in the infero-nasal quadrant, but no fluid appeared beneath the conjunctiva. There was no immediate result from the operation, but on removing the bandage on the fourth day the retina was found totally detached and so remained till his death four years later.

CASE VIII.—Mr. F. P. W., aged twenty-eight years. First seen November 27, 1885.

Four years ago he received an injury to the left eye, of the nature of a contusion, which produced immediate blindness,

lasting nearly forty-eight hours. Vision then began to return and slowly improved for about a year, at the end of which time he thought he saw as well as ever. What the lesion was he does not know, as he was in the interior of South America and could not reach a physician, but it was probably an intra-ocular hæmorrhage. Two weeks ago, while writing, the vision of the left eye became suddenly obscured and has remained so ever since.

R. E. = $\frac{2}{30}$ —; with cyl. + D. 0.50 axis 90° = $\frac{2}{30}$ +. Media and fundus normal.

L. E. = fingers eccentrically in lower and outer quadrants of the field. Floating and fixed membranous opacities in the vitreous. Detachment of the retina inward and upward over about half of the fundus.

Recognizing the original cause of the trouble as a traumatism, I was inclined to take rather a favorable view of this case. He was put on his back in bed, atropine was instilled, and a bandage applied for a week. Pilocarpine was injected hypodermically and borne very well, but produced very little physiological effect in spite of large doses. At the end of the week the sclera was punctured in the equatorial region in the supero-nasal quadrant, and the narrow knife was carried through the detached retina and into the vitreous in order to divide the membranous bands in the vitreous. The detachment collapsed at once and the eye was immediately bandaged. Absolutely no reaction followed, and though the vitreous remained cloudy there was no return of the detachment for nearly five weeks. It then returned in the same spot and to about the same extent as before. The patient was unwilling to submit to any further operative interference. I have seen him at intervals since, and the detachment has shown no tendency to extend, but the vision has steadily failed and the lens has finally become opaque.

CASE IX.—Mr. E. M., aged fifty years. First seen May 16, 1886.

Has always had what he called weak eyes, and has never been able to do any continuous work; but his vision was always good until four weeks ago, when the left eye suddenly became very defective.

R. E. = $\frac{1}{30}$; with sph. + D. 0.50 = $\frac{1}{30}$ —. Media and fundus normal.

L. E. = $\frac{2}{70}$ + eccentrically with upper portion of the retina. T. + 1. Slight ciliary injection. Lens and vitreous clear. Detachment of entire lower half of the retina. As this was a recent detachment I decided to operate at once. The patient was put to bed and the eye cocaineized. The sclera was then punctured with a narrow knife in the infero-temporal quadrant subconjunctivally, just behind the ciliary region, and a moderate amount of turbid yellow fluid was evacuated. The detachment partially collapsed, and with the ophthalmoscope a long rent in the retina was seen downward and outward close to the ciliary region. Atropine was then instilled and the eye bandaged. Almost no reaction followed, but the patient was kept in bed and the eye bandaged for ten days. There was still a partial detachment and some haziness of the vitreous, but the vision had somewhat improved and now measured $\frac{2}{30}$. Immediately after the operation the hypodermic administration of pilocarpine was begun. The patient bore it very well and it was continued for two weeks, but without producing any effect upon the detachment of the retina, which still remained. The eye remained in about the same condition for two years, and then the vision grew steadily worse, fixed and floating opacities appeared in the vitreous, the tension was at times increased and at times diminished, and eventually the lens became opaque and vision sunk to perception of light. Before the cloudiness of the lens prevented

ophthalmoscopic examination there was no further extension of the detachment noticed.

CASE X.—Mr. G. B., aged forty years. First seen October 20, 1886.

Always very myopic, but vision was always good until eight months ago. At that time he received a violent blow on the right eye which was followed by decided inflammatory action, and since then the vision has been very defective. Two weeks ago he was struck by a flying chip of stone in the left eye and lost the sight of that eye immediately. Since then vision has returned in a part of the field.

R. E. = $\frac{2}{30}$, unimproved. Small nuclear cataract. Lens in place. Floating opacities in the vitreous. Extensive degeneration of the choroid.

L. E. = $\frac{2}{30}$; with sph. — D. 5 = $\frac{6}{70}$ eccentrically. Faint opacities in the lens. Membrane in the vitreous. Fluttering iris. Lens in place. Detachment of entire lower half of the retina.

The patient was placed in bed, atropine was instilled in both eyes, and a bandage placed over the left eye, and no further treatment was instituted till the irritating effects of the injury had subsided, which occurred in about three weeks. The vitreous was still so cloudy that puncture was deemed unwise, and pilocarpine was then injected daily for three weeks, the atropine and bandage being continued. There was a decided improvement in the media, the vitreous becoming markedly clearer, and the chorioidal process being apparently arrested. Two months later the membranous bands in the vitreous and the detached retina were divided from below by a very narrow knife through a subconjunctival incision. A few drops of turbid fluid exuded, but there was no collapse of the detachment, and all further treatment was given up. This eye remains in practically the same condition to-day, after a lapse of nearly eight years, vision being $\frac{1}{100}$ unimproved by a glass.

CASE XI.—Mr. H. K. La F., aged fifty-four years. November 26, 1886.

Has always been myopic, but has never worn glasses, and has overworked his eyes all his life. In April, 1881, he suddenly discovered that he was totally blind in the left eye, and on consulting an oculist he was told that the retina was detached. In May of the same year the vision of the right eye became suddenly very defective, so that he could only see with the extreme outer angle of the field, and here also there was found a detachment of the retina. He was kept on his back in bed for two months, atropine was instilled in both eyes, and the right eye was kept bandaged most of the time. He also had injections hypodermically every other day of some drug, which was probably pilocarpine, as it induced profuse perspiration. The vision began to improve first in the left eye, but subsequently also in the right eye, and at the end of six months he was able to read again with the right eye. In 1883 opacities appeared in the lens of both eyes, and shortly before I saw him he was told that the sight was destroyed in the right eye by the cataracts and that nothing could be done for it. Examination showed R. E. = $\frac{2}{70}$, unimproved. Lens nearly entirely opaque. Fundus invisible. T. — 1.

L. E. = perception of light. Lens cloudy at periphery. Very hazy vitreous. Detachment of the retina inward, upward, and outward. T. — 1.

He was told that nothing could be done for the left eye, and that it was very doubtful whether anything could be done to improve the right eye, as the extent of the detachment could not be determined. The first step was the extraction of the cataract, and to this he consented. The incision was made in the limbus and was accompanied by an iridectomy. The capsule was opened and the lens evacuated without difficulty. There was very little reaction, the wound healed readily, and

two weeks after the operation a moderate detachment of the retina was discovered downward and outward. As the capsule stretched and gaped and the vitreous grew clearer, very extensive degeneration of the choroid was seen, but there were no fixed bands of adhesion in the vitreous. Vision slowly improved, so that eventually with a sph. + D. 4 he could see $\frac{1}{200}$, but beyond this it never rose, and he has never been able to read any printed type. The eye remained in about the same condition till his death five years later.

CASE XII.—Mr. J. H., aged thirty-six, lawyer. First seen on December 1, 1886. Always very myopic and vision very defective. Some time in the spring of 1886 he woke one morning and found the vision nearly gone in the left eye, and was told that he had detachment of the retina. In October, about two months before I saw him, there had been an operation performed upon the left eye, which proved unsuccessful in restoring any useful vision. Examination showed that an iridectomy had been done upward in the left eye.

R. E. = $\frac{6}{30}$; with sph. — D. 6 = $\frac{1}{4}$. Hazy vitreous. Extensive degeneration of the choroid, especially around the posterior pole of the eye.

L. E. = $\frac{6}{100}$ eccentrically, unimproved. Lens clear. Vitreous very hazy, with floating opacities. Retina detached downward, outward, and inward. Coloboma iridis upward.

I advised the usual treatment in the supine position in bed, with atropine, pilocarpine, and a bandage, but he was not willing to submit to the confinement, and went away. In 1889, while in a distant city, the retina became slightly detached in the right eye, and the left eye, which had become entirely blind, was enucleated on account of the condition of the right eye. He consulted me again on the 28th of June, 1890, and I found in the right eye V. = $\frac{6}{30}$, which by sph. — D. 5 was improved to $\frac{1}{200}$. The lens was clear, the vitreous was quite hazy, and the retina was detached downward and outward.

He was treated for nearly four weeks by rest in bed, atropine, a bandage to the right eye, and pilocarpine hypodermically, but the latter was discontinued on the fourth day, owing to very grave symptoms of cardiac failure. There was a decided improvement of the vision and in the detachment, which, however, lasted but three weeks. The latter then returned and involved more of the fundus, and I advised an operation. The sclera was punctured subconjunctivally downward and outward, and a few drops of fluid came out, but no effect was produced upon the detachment, and the vision gradually sank to $\frac{2}{30}$.

CASE XIII.—Mr. C. W. L., aged fifty-three years, merchant. First seen February 2, 1887. Always myopic. Put on glasses for the first time six years ago. About a year ago he suddenly lost the vision of the right eye and it has never returned. There is a constant dull ache in the eye, which at times becomes severe. An examination showed:

R. E. = $\frac{3}{30}$ eccentrically, unimproved. Lens cloudy at periphery. Vitreous very hazy, with floating opacities. Retina detached upward, outward, and downward over about four-fifths of the fundus.

L. E. = $\frac{1}{30}$; with sph. — D. 8 = $\frac{1}{2}$.

The patient was told of the hopeless nature of his disease, but when informed that something might be tried, consented at once. He was placed in bed, the eye was cocainized, and a subconjunctival puncture of the sclera was made about three millimetres long in the infero-temporal quadrant. Only a few drops of turbid fluid exuded. Atropine was then instilled, a bandage was applied, and pilocarpine was injected hypodermically; and this was done daily for three weeks. At first the vitreous cleared up, and some of the floating opacities disappeared, so that a better view of the fundus was obtained, and

here very extensive degeneration of the chorioid was found. But before the treatment was discontinued, the opacity of the vitreous again returned and vision was reduced to the standard at which it had been before the operation. No apparent effect was produced upon the detachment, which about a year later became total.

(To be concluded.)

MASTOID AFFECTIONS: THEIR COURSE AND MANAGEMENT.

By VINCENT GOMEZ, M. D.,
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BEFORE entering into the consideration of this paper permit me to call your attention to some of the important anatomical features of the middle ear.

To begin with, it is an air containing space, and lined throughout with mucous membrane which is continuous with the mucous membrane lining the naso-pharynx. The component parts which form this structure are the Eustachian tube, the tympanic cavity, and the mastoid cells.

The Eustachian tube is composed of an osseous and a cartilaginous portion. The narrowest portion of the tube corresponds to the point of union of these two parts. Its direction is obliquely outward, backward, and slightly upward, with a very obtuse angle opening downward. Its tympanic orifice opens in the anterior and superior portion of the tympanic cavity; its pharyngeal orifice is much wider, and situated at seven centimetres from the opening of the anterior meatus of the nose. The cartilage of the tube only exists in its internal and its superior borders. The mucous membrane contains throughout ciliated epithelium, the movements of the cilia being from the tympanic cavity toward the pharynx, thereby acting as a means of drainage and impeding any micro-organisms from the pharynx invading the tympanic cavity. The membrana tympani is a delicate, semitransparent, gray, pearly membrane, adherent to the handle of the malleus. It is circular, and one centimetre in diameter; its thickness is about one two hundred and fiftieth of an inch. It is situated at the fundus of the external auditory canal, and forms, in unison with the inferior wall of the external canal, an obtuse angle. Its internal wall is concave, its external wall is convex, and separates the cavity of the tympanum from the external auditory canal. The layers which compose it are three in number, and are, viz., first, an epidermic or dermoid layer; second, a fibrous layer; and third, a layer lined with pavement epithelium.

The tympanic cavity consists of two portions—the atrium, which lies right behind the membrana tympani, and the attic, which lies above the membrana tympani. The communication between these two portions is somewhat narrow, due to the arrangement of the folds of the mucous membrane and ossicles; and hence, even if we have but a slight inflammation with some swelling, it can be readily seen that this space can be easily shut off, this being a strong factor in middle-ear pathology.

The mucous membrane lining the tympanic cavity is

very thin and delicate, and is usually made up of tessellated epithelium.

A little above, continuous and posterior to the attic, we find the mastoid antrum, affording communication between the mastoid cells and the tympanic cavity.

The mastoid cells consist of one large, irregular aperture and several smaller ones, situated at the upper part of the posterior wall. These cavities vary considerably in number, size, and form. They are lined with mucous membrane, continuous with that covering the tympanic cavity.

Now we shall take up the individual mastoid affections.

Primary periostitis of the mastoid process occurs but very seldom. Periostitis is usually secondary to both acute and chronic inflammation of the middle ear, the process traveling outward from the tympanum until the covering of the mastoid is reached. The bony portion of the external auditory canal is much shorter in early life, hence this affection is more frequently met with in young people.

The usual symptoms which occur are pain, redness, and œdema over the mastoid; the pain is usually of a severe and sharp character, and there is marked tenderness on pressure over the mastoid.

The pain sometimes radiates over the whole side of the head. If the attack be of a severe character there will be some fever or elevation of the temperature. The tongue is usually coated, and the patient will feel quite ill. The rule is that pus forms sooner or later. If left to itself the scalp may be undermined with pus, or the pus may burrow along the course of the sterno-cleido-mastoid muscle. The discharge from the external auditory canal is usually of a purulent character, and the marked fœtor of it is frequently observed.

In the treatment of this affection it is usually wise to resort at first to antiphlogistic measures, such as the use of a brisk purge, Leiter's ice coil applied constantly over the mastoid or frequent applications of iced cloths, painting with pure tincture of iodine or a saturated solution of nitrate of silver, or applying two or three active leeches, and rest in bed; at the same time the external auditory canal and adjacent parts must be kept scrupulously clean by the use of a solution of bichloride of mercury (1 to 5,000) or a 1-to-40 solution of carbolic acid. If the discharge has any fœtor the use of peroxide of hydrogen usually does good. If by these means we accomplish no good, then we may resort to making a Wilde's incision. A stout scalpel is introduced near the lower border of the mastoid, penetrating at once to the bone, extending the incision upward parallel to the auricle and about half an inch behind for about two inches. In making the incision, note whether you can detect any roughness; if there is, it usually indicates necrotic or carious bone. Even if no suspicion exists of the bone being involved, it is usually wise to explore the incision with a probe, to see if any rough or soft bone is present, or a fistulous opening may be detected in this way. We may have as a complication cellulitis, giving the sense of fluctuation, but still when the incision is made no pus is found. The division of the tense tissues and the bleeding in these cases does often give great relief. A good antiseptic wash may be used

daily to cleanse the wound; this may be done by means of the syringe. The wound should be kept open until nothing remains of the disease, and pain has entirely disappeared from the mastoid and its immediate vicinity. Granulations at times make their appearance along the edges of the wound, these usually can be got rid of by means of lunar caustic or clipping them off with scissors.

Allow me now to divert your attention to the affection known as mastoiditis.

Primary mastoiditis occurs but very seldom, and, as said before, it is usually secondary to inflammation originating in the tympanum. This inflammation usually occurs by continuity of the muco-periosteal lining.

The swelling of the soft parts may very decidedly resemble simple mastoid periostitis. In some cases there will be destructive inflammation, giving rise to pus formation and perhaps caries or necrosis of the bony partitions between the cells, so that in this way the whole mastoid may be converted into one large cavity, and it still may go on destroying bone until the larger part of the whole temporal bone is destroyed. In other cases a sclerosis of the bone may occur which may convert the whole mastoid into a solid bony mass of ivorylike consistence. The pain in mastoiditis is usually due to confined pus pressing upon the branches of the trigeminus. Hyperæmia will also act in this manner.

Mastoiditis is not likely to occur during a very acute stage of a tympanic inflammation, or at least not until the disease has made some progress. In severe cases of acute inflammation of the tympanum the periosteum of the meatus near the membrana tympani may become invaded; this may be separated from the bone and deprived of its nutrition, and by so doing it becomes carious. If this condition of affairs occurs in the posterior superior quadrant it is likely to affect the mastoid cells. Furuncles of the meatus may also invade the periosteum at this portion of the meatus, and extension may occur into the mastoid cells.

In periostitis of the mastoid process caries may occur and destroy the underlying bone, and extension into the mastoid cells may occur in this manner.

The symptoms of mastoiditis are both subjective and objective.

We may have a case of acute inflammation of the tympanum, but the symptoms do not disappear after ordinary methods of treatment have been used. There will be persistent pain about the ear, but especially referred to the mastoid region. There may be signs of irritation of the meninges, such as vertigo, sleeplessness, nausea, elevation of temperature sometimes of an irregular character, sensitiveness to loud noises, etc. The pain is usually more marked during the night.

Objective.—The usual signs of a periostitis will be present. The position of the auricle is usually characteristic; it stands out at right angles to the side of the head. Tenderness to the touch or percussion over the mastoid or side of head, redness, heat, and œdema.

Swelling and bulging of the posterior superior quadrant of the membrana tympani, or a teat-like perforation in this

same region, are two very suspicious signs of mastoiditis, and we should always be on our guard when we have them.

The prognosis of mastoiditis is usually a guarded one. Remembering that a quarter of all cerebral abscesses are due to middle-ear lesions, the prognosis depends largely upon the direction in which the necrosis has occurred, and the danger of the rupture occurring in an inward direction. In acute cases, when there are no threatening symptoms, we should at first resort to other means of treatment before operating, at least for a few days. We may use locally heat or cold, usually Leiter's ice coil, counter-irritation by means of blistering with cantharidal collodion, or the application of two or three active leeches; at the same time the most thorough antiseptic precautions, such as syringing of the external canal and tympanum. Rest in bed is also of prime importance.

We will next consider the indications for trephining or opening the mastoid as laid down by Schwartze. In cases of acute inflammation of the mastoid process with retention of pus in its cells, when œdematous swelling, pain, and fever do not subside after treatment with ice or Wilde's incision. In cases of secondary inflammation of the mastoid process, every cause for retention of pus in the auditory canal and in the tympanum should be removed. In this manner alone appearances of inflammation of the mastoid not seldom take on a retrogressive course, even where they are accompanied by quite threatening symptoms—high fever, continued pains in the head and neck, and infiltration of deep-lying cervical tissues. But this improvement is in most cases only temporary, and in the course of weeks or months a change for the worse takes place which finally renders the operation necessary.

In cases of externally healthy mastoid, where there is retention of pus or the formation of a cholesteatoma in the middle ear, and which can not be removed through the natural channels. In cases where the mastoid process, externally healthy and without retention of pus in the middle ear, is the seat and starting point of continual and unendurable pain, for relief of which all other means have failed (bone neuralgia). As a prophylactic operation against lethal conditions, where we have a putrid discharge from the middle ear, and no other symptom of pus in the middle ear (pain, fever, etc.) exists other than the intense penetrating factor of the purulent discharge, in spite of the most careful cleansing and antiseptic irrigation through the external canal, tympanic cavity, and Eustachian tube.

The Operation.—A day, or a few hours, before the operation the patient should be given a thorough bath. Preparatory to the operation the whole ear and mastoid process should be thoroughly washed, first with castile soap and tepid water; then the mastoid is shaved to about three inches away from the auricle. The mastoid region, the neck, and side of the head should be soaped and scrubbed with a brush in a very thorough manner; next all the parts are rinsed with a clean antiseptic solution, and washed with alcohol so as to remove any grease which may be present, followed by a 1-to-2,000 bichloride solution. The external canal should previously be syringed with a sublimate solution, 1 to 1,000, and plugged with sterilized cotton.

Towels soaked in a sublimate solution, 1 to 1,000, are placed in the following manner: One is tied around the patient's head so that no hair from the scalp can penetrate, one underneath, and one on each side. It is well also to put around the patient a rubber apron, so that the clothing is not soiled with blood, etc. Others use a Kelly pad, placing the head on it.

The instruments should be scrubbed, and subjected to boiling for at least half an hour, when they may be dipped in alcohol, and finally laid on a tray, where they are immersed in a solution of carbolic acid, 1 to 20. The operator's hands and those of his assistants should also be thoroughly sterilized.

The incision can be made from above downward, or *vice versa*. A great many prefer to commence at the apex, because in this manner, I believe, there is less danger of wounding the blood-vessels of the neck. The incision is carried from the apex upward half an inch behind the auricle, and parallel to the auricle for a distance of two inches.

It is best to try to cut down to the bone at once and make the entire incision by one movement of the knife. This done, the periosteum being divided, bleeding points are sought for and controlled with artery forceps, or the bleeding vessels are ligated. The periosteum is now separated by pushing backward and forward with a raspatory until we get a good view of the bone; retractors will have to be used in order to accomplish this. The bone is now carefully examined for caries, soft spots, or fistulous openings. If they are found they usually serve as a good guide to select the place to open the bone. If none of these conditions are found, we choose our place for opening the bone right behind and close to the posterior wall of the bony canal. Its upper border is not usually higher than the superior wall of the external canal. The opening should extend forward and inward, and when we are near to the antrum it should be made somewhat upward, following at the same time and parallel to the posterior wall of the canal; by doing this we can usually avoid opening into the middle cerebral fossa or wounding the lateral sinus.

Bezold recommends opening the lower extremity of the mastoid, so as to completely open both the outer and inner surfaces of the digastric fossa. For removing the bone many operators prefer chisels or gouges. When using the chisel or gouge it is well to frequently pass in a probe, or the finger, to observe what progress has been made. After the external table has been successfully removed, which will vary from one twelfth to one fifth of an inch, unless we have to deal with a sclerosing process, when the thickness will be much greater, the cells may be broken by means of a probe or director. After we have opened the mastoid to about a quarter of an inch and we do not encounter any cavity, we may direct the canal more forward, when we will be able to chisel into the attic, and going backward, guided by a probe, open into the antrum.

Sometimes the lateral sinus is accidentally opened in our endeavor to open into the mastoid cells. The hæmorrhage from such an accident is somewhat characteristic, welling out very copiously. It usually can be controlled by means of a cotton tampon, and it is not such a serious acci-

dent as it may seem. After the antrum has been opened successfully, all portions of spicules and necrotic or carious bone should be thoroughly removed by means of a sharp spoon, any granulations which may be present should be scraped away, and the bone should be evenly smooth.

The whole wound should be thoroughly cleansed and syringed with a sublimate solution (1 to 1,000). Recurrent drainage should be secured through the tympanum, so that any discharges which may accumulate may have an exit. The external canal should also be syringed with a sublimate solution (1 to 1,000). The parts are now dried, and the wound packed with iodoform gauze, covered with a good thick layer of sterilized cotton, the whole being held in place by a bandage.

The after-treatment is usually conducted on general principles. It consists of cleansing by the use of antiseptic syringing, and packing with iodoform or sterilized gauze every two or three days. The length of time elapsing between each dressing must be governed by the amount of suppuration and the condition of the patient. If there is much reaction after the operation the patient should be confined to his bed for a greater length of time. The wound should be kept open until all suppuration has ceased from the tympanic cavity and the artificial canal. If during the process of healing the patient at any time should have pain or fever, the wound should be carefully explored for confined pus. If any should be found, it must be evacuated at once, and the wound irrigated with some antiseptic solution. Granulations form at times, obstructing the egress of fluids from the tympanum. These must be destroyed by means already advocated. The duration of the process of healing is usually from two weeks to two months.

The most recent advance in middle-ear surgery is Stacke's operation modified by Schwartze.

Stacke's operation is as follows:

The cutaneous incision is somewhat different from the so-called Wilde's incision. The lower end is more curved and extends to the mastoid apex, and the upper part is kept closer to the auricle and carried well around to the front. The bone is bared and the meatus is separated from the posterior wall and its internal attachments severed. With a gouge of small size the superior wall of the bony meatus is chiseled away and the malleus and incus removed. The superior wall must be chiseled off near the insertion of the membrana tympani. The posterior wall of the meatus is next chiseled until the antrum is fully opened. In this way Stacke converts attic, antrum, and meatus into one large cavity.

An easier way for accomplishing this is described by Allen, of Cincinnati, and quoted by J. E. Sheppard in a pamphlet on The Surgical Pathology of the Mastoid Process. The antrum is first opened as in the old operation. The membranous meatus is then dislodged from the posterior and superior walls and held forward against the anterior wall by a one-pronged retractor. A bridge of bone now separates the meatus from our opening into the antrum. We now chisel away this bridge of bone, the piece removed being triangular in shape, the base external, the

apex at the neck of the antrum. Care must be taken, as the apex of the triangle is approached, not to injure the facial and semicircular canals which are directly opposite. If the malleus and incus are present, they may be removed. The lateral wall of the attic (superior canal wall) is then removed. Of the posterior canal wall there is now left a ridge partially separating the meatus and antrum. As much of this should now be chiseled away as is compatible with safety, the object being to make the attic and antrum as accessible as possible from the external canal. The posterior membranous canal is now split horizontally outward to the concha, and at the outer end of this cut an incision is made at right angles. Thus a rectangular flap is formed, which, when the soft parts are thrown back in position, we proceed to tampon from the meatus firmly into the osseous cavity with small pieces of gauze. According to Stacke, the tamponing of the membranous meatus into the artificial opening has a double advantage.

1. It causes the formation of a persistent skin-covered communication between the antrum and meatus.

2. It is a skin transplantation from which the formation of epidermis over the entire cavity can take place. The cavity is plugged thoroughly from behind as well as from the meatus, the external wound dusted with iodoform, and by Stacke left open, so that later tamponing can be done from without; by Schwartze, in many cases, tightly sutured and primary union sought for, the cavities being treated entirely through the meatus. The after-treatment consists, besides cleansing, in thorough tamponing and other means to thwart all attempts of Nature to fill up the cavity.

Stacke's operation is very radical, and therefore only indicated in chronic and otherwise incurable cases. It is an ideal operation in cases where cholesteatomatous masses are found. Accidents of an unpleasant nature may occur during these operations. Among these may be mentioned: Opening into the Falloppian canal and injuring the facial nerve; injury to the dura mater, or opening into the sinuses of the brain. Neither of these accidents necessarily occasion a fatal result.

The following two cases will probably impress upon our minds how to take into consideration these accidents, and show that usually a good recovery is obtained.

These two cases occurred at the clinic of Dr. J. E. Sheppard, at the Brooklyn Eye and Ear Hospital, and were reported by him in conjunction with others in the *Archives of Otolaryngology*, vol. xxii, No. 3, 1893:

CASE I.—Miss E., aged twenty-one years, came to clinic at the Brooklyn Eye and Ear Hospital, March 14, 1893. She gave a history of discharge from the right ear for two months, preceded and accompanied by severe pain in and behind the ear and somewhat over the side of the head, and always worse at night. Examination showed H. D., w. 0/60; whisper, 7'. Tuning-fork from vertex in right ear, in which it is better heard by bone than by air conduction. Auricle pushed considerably outward from side of head; behind it a large, red, very tender swelling, extending downward about an inch from the level of the upper margin of auricle (patient says this has existed only two or three days); posterior and superior canal walls bulged considerably into the canal, which is filled with pus; membrana tympani only partially visible, but

perforation whistle results from inflation of the middle ear. Recommended immediate operation, which was done by Dr. J. E. Sheppard the following day, March 15th.

The tissues overlying the bone were very much infiltrated (three quarters to an inch thick), periosteum loosened, surface of bone much roughened, but with no overlying pus. At one point the bone was greatly softened; on commencing to curette this with a sharp spoon, it was found that the whole outer cortex could be scooped away in this manner, no chisel being needed. A large opening was thus made, with the escape of considerable pus; a great amount of granulation and necrotic tissue was curetted away, observing, however, the utmost caution, since, on finding the cortex so diseased, the danger of opening the sinus was great. Finally, while clearing out the upper, inner, and posterior part of the cavity, the assistant was drying it out with a pledget of cotton, on removing which there was a large flow of dark venous blood. Further proceedings were stopped, the cavity firmly plugged with cotton while the parts were cleansed, and after its removal was packed with iodoform gauze, covered with plenty of cotton and a tight bandage. Oozing not more than ordinary. First dressing, March 17th; no hæmorrhage; wound looking well; lightly syringed and packed with gauze. Highest temperature recorded was, twenty-four hours after operation, 100.6°. Pain entirely relieved. At the second dressing, March 20th, the perforation of membrana tympani was found healed. Left the hospital to become an outdoor patient, March 31st. Dr. Sheppard's comments on this case are as follows: Recovery has, considering the external swelling, the amount of necrosed bone, etc., before operation, been rather unusually rapid, there having been no untoward symptoms, the patient being discharged, with the wound entirely healed, June 5th. H. D., w. 30', whisper, 40'.

CASE II.—Mrs. McL., aged fifty-five years, applied for treatment at the Brooklyn Eye and Ear Hospital on May 12, 1893. She reports herself as convalescent from a recent attack of "grippe." Has had for two weeks pain localized behind the right auricle, with constant pulsating tinnitus, and some hardness of hearing.

Present Conditions.—H. D., w. r., 1-2/60; L., l. d/60; whisper R., 5'; L., 4'. Tuning-fork from vertex better in right ear. In both, bone conduction better than air. Over the right mastoid, where the pain is located, is a distinctly localized point of tenderness to both pressure and percussion. Right canal normal; moderate redness of membrana tympani, especially marked over attic and malleus handle. Left canal, walls somewhat irritated; outer layer of membrana tympani white and loosened, masking an underlying markedly red membrana tympani and slight bulging of the postero-superior quadrant.

Treatment.—Gentle inflation; two leeches over tender part of mastoid. The inflammation in the left ear yielded readily to this treatment without rupture of the membrana tympani. In the right side the redness of attic and handle subsided somewhat, but the mastoid pain and tenderness, although yielding temporarily to the bloodletting, were practically unchanged up to May 20th, when operation was decided upon and performed.

Pus was found immediately under the cortex in a few of the superficial cells. While working inward toward the antrum and when well forward, close to the posterior wall of the external auditory canal, there was a flow, not at first very profuse, but constantly increasing, of dark venous blood, indicative of opening of the lateral sinus. The wound was packed with cotton during cleansing, and then with gauze, and tightly bandaged. No more than ordinary after-oozing. Highest temperature 99.6°, the day following the operation. Patient left the hospital June 5th, and the wound was healing rapidly. Hearing about normal in both ears.

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FOOTBALL FROM A MEDICAL POINT OF VIEW.

At a recent meeting of the American Physiological Society Dr. Henry G. Beyer, of the navy, read a paper entitled Football and the Physique of its Devotees, from the Point of View of Physical Training. The paper appears in the September number of the *American Journal of the Medical Sciences*. Dr. Beyer thinks there is about an equal amount of exaggeration in the dangers and disadvantages alleged to result from the game and in the beneficial influence of the sport maintained by its advocates. He mentions a very considerable number of deaths attributed to the game recorded by the *Lancet* and by the *Medical News*, and adds the comment that it would be more satisfactory if these accounts had been accompanied by statements as to the number of players and as to the circumstances under which death or serious injury has been traceable to the game or to the evils that accompany it. Nevertheless, so far as bare facts go, he says, the opponents of football seem to have the best of the argument, and it is incumbent on the advocates of the game to produce, if they can, facts calculated to neutralize those adduced on the other side. To aid in determining the effect of football on the physical condition Dr. Beyer has made observations on several players from the University of Pennsylvania, from Princeton College, from Lafayette College, from Franklin and Marshall College, from Rutgers College, and from the Naval Academy. He has found this sort of investigation of a visiting football team, he says, an unusually difficult undertaking, for the members, anxious about the result of a contemplated match game, are quite unwilling to submit to being measured to the extent necessary for obtaining accurate and valuable results an hour or so before the game begins; it is simply useless, he adds, to inform them that it can not possibly hurt a man in training for football to squeeze and pull about a few manometers. Moreover, in such cases he had to work rapidly, and he remarks that in all quick work there is danger of more or less sacrifice of accuracy. Therefore he gives prominence to other examinations.

The ages of the players examined ranged between nineteen and twenty-two years. The points noted related to stature, weight, lung capacity, and total strength. The observations were made at the beginning and at the end of a period of two months' training. No change in the stature was noted, but Dr. Beyer says that he does not wish to be understood as asserting that the height of football players never changes during the training period, and he avers that growth in height does not stop in persons who have undergone training and are still of an age at which their full stature can not have been attained, for he has seen it take place after the training was over. The

training was observed to be accompanied by a decided increase of weight, averaging in seventeen players 7.9 pounds, and in twenty-five other players 7.2 pounds. As regards the effect on the lung capacity, the examinations of seventeen players showed in all but two instances that there had been no change. The two exceptional cases were those of half-backs, who had to do a great deal of running during the game. In twenty-five other players an average increase of 3.9 per cent. in lung capacity was observed, however, together with an average increase of 14.2 in total strength. The method of ascertaining the total strength is obtained by multiplying the weight of the subject, expressed in kilogrammes, by the "dip" and the "pull," dividing the product by ten (to prevent too great a number of figures in the calculation), adding the strength of the back, the strength of the legs, the average of the forearms, and the lung strength. All this is illustrated in the paper at sufficient length. The average increase of the total strength of seventeen players was found to be 16.4, and that of twenty-five other players 14.2 per cent. In both series of observations there was a decrease in the vital index. The vital index is obtained by dividing the lung capacity, ascertained by means of a spirometer and expressed in litres, by the weight of the individual in kilogrammes.

Dr. Beyer thinks that these observations, if they prove anything, show plainly that, while football can not be considered the best game in the world, and much of its vaunted superiority is due to popular clamor conjured up by the newspapers, it must, nevertheless, be considered as *one* of the best games extant. While it must be admitted, he adds, that accidents may occur on account of the game, in spite of all proper precautions, it is, nevertheless, also true that, were all the circumstances surrounding the recorded cases of death known, they would all be found traceable to gross carelessness of one kind or another. So far as his own observation goes, all the injuries produced on the football field, in games played by gentlemanly and well-matched players, have been amenable to treatment and have resulted in perfect cure. Dr. Beyer concludes by emphasizing the precaution mentioned by President Warfield of making the medical director in charge of physical training in colleges omnipotent to exclude from the game boys who are unfit to engage in it by reason of certain physical conditions or injuries.

THE ETHICS OF HOSPITALS.

THE *Lancet* for August 11th publishes a letter, signed "Gynecologist," headed The Chelsea Hospital Appointments, in which the writer seems to be deploring the fact that obstetric physicians are supplanting pure surgeons in the institution mentioned. He says: "Hospitals which are flooded with obstetric physicians and general practitioners who operate without undergoing special training in surgical work everywhere produce the same results." He adds this striking comment: "Abdominal surgery has lived on statistics, and she will probably end by being devoured by her own children."

In the same number of the *Lancet* there is a leading article on The Ethics of Hospitals the text of which has to do with the

Chelsea Hospital for Women, so that the hospital appears to be meeting with criticism from more than one point of view. The writer of the editorial says that one of the first duties of hospital authorities, lay as well as medical, is to reject all patients whose cases are of a slight nature and refer them back to their own physicians. The treatment of severe and exceptional cases, the writer goes on to say, is interfered with by the admission of multitudes of patients whose comparatively trifling ailments could be better treated at home. It seems that one of the complaints made against the Chelsea Hospital is that of the resort to grave surgical procedures for the cure of slight troubles; another is the neglect of the principle of consultation in doubtful cases and especially in cases of difficult surgical operations. The writer thinks that the staff of a hospital should share more or less the responsibility of sanctioning and performing operations, and, moreover, whenever it is practicable, and in all doubtful cases, the patient's usual medical adviser should be consulted. This precaution, the writer adds, is of immense importance where unusual procedures and those that carry with them great risk are involved. Even where the patient is too poor to have had his own physician, the writer suggests that it is not unreasonable to associate an outside general practitioner in a consultation, not because he is a specialist, but because he is not one and will view the case more in the light of the public and of one acquainted with the ordinary course of disease. The surgeon's attitude with regard to such operations should be one of reluctance rather than of eagerness. Much as surgery is appreciated nowadays and great as are the expectations founded on it, none the less is it blamed when it fails, and the surgeon owes it to his patient as well as to himself to acquire every sanction for procedures that may involve loss of function or loss of life. The attending physicians and surgeons of hospitals should recognize their personal responsibility to the patient and to the public more than is often the case, and not hand over to the house staff, competent as it may be, the cases that are really intrusted to their own care; by pursuing the contrary course they are guilty not only of a breach of faith to the patient, but also of misusing the members of the house staff.

The surgery of the present day, says the article, includes many operations that are wholly new and some that are brilliantly successful in the relief of suffering and the saving of life. This surgery is eminently conservative; it saves numerous limbs as well as lives. It would be unreasonable to expect such work to be done without some risk, but the risk should be reduced to a minimum. He who practices surgery in this antiseptic era without taking antiseptic precautions—as the writer phrases it, “He who practices Victorian surgery without Victorian precautions”—is living in a fool's paradise, and is untrue both to his art and to his patient.

MINOR PARAGRAPHS.

AMPUTATION AT THE KNEE WITH A LONG POSTERIOR FLAP.

IN the *Revue internationale de médecine et de chirurgie pratiques* for August 10th there is a summary of an article by Dr.

Montaz, of Grenoble, published in the *Dauphiné médicale* for June, in which the author, after recounting the objections to the ordinary methods of amputating at the knee joint, including osteoplastic supracondylar amputation, describes a method which he thinks has particular advantages. It consists in cutting a long posterior flap, disarticulating, and then detaching the posterior soft parts subperiosteally by means of a raspator. The advantages of such a flap, says Dr. Montaz, are well known, especially when it includes the arteries and the veins. It is added that the stump formed by this procedure is ideal, admirably padded by the posterior muscles, well innervated, and marvelously well supplied with blood, for it conforms to the absolute rule of surgery that the main artery of the limb should be preserved to the lower edge of the flap. The patella is retained. The condyles of the femur furnish a broad surface for support in walking. The triceps and the adductor magnus preserve their insertions. The scar is in no wise exposed to pressure, for it is situated in front and on the side and has rather a tendency to mount upward. There is no special technical difficulty in the performance of the operation. Great care should be taken in preserving the vessels that ramify close to the bones; as concerns this point, the subperiosteal procedure offers great security.

ARTERIAL CATHETERISM.

IN the *Progrès médical* for August 11th there is an article on this subject by Professor Severeanu, of Bucharest, who says that he thinks he is the first one to propose the practice of introducing a catheter into an artery in certain cases. He has practiced it in cases of gangrene due to embolism, as an adjunct to amputation of the mortified part. The procedure consists simply in inserting a small flexible catheter, rendered thoroughly aseptic by means of alcohol and carbolic acid, its whole length into the lumen of the artery by means of to-and-fro movements. When the blood begins to flow alongside of the catheter the latter is withdrawn and clots are then ejected from the artery so that the course of the blood circulating in it is re-established. The capillary hæmorrhage from the flaps then becomes more abundant and the tissues assume a brighter hue. To this procedure the author attributes it that he has ceased to encounter gangrene of the flaps and has obtained their union by first intention. Sometimes, he says, owing to adhesions between the clot and the wall of the artery, it is impossible to make the instrument penetrate the artery, and in such cases it is not uncommon to see a portion or the whole of the flap become gangrenous.

ECZEMA OF THE HANDS IN SURGEONS.

AT the Twenty-third Congress of German Surgeons, according to a report published in the *Gazette hebdomadaire de médecine et de chirurgie* for August 18th, Dr. Lassar stated that, in his opinion, the eczema of the hands frequently seen in surgeons was produced by antiseptics, which, although they caused cutaneous alterations which were hardly appreciable, were yet sufficient to explain the particular sensibility of the skin. This, he thought, was the reason of the frequency of relapses. As to the treatment, all that was needed to cause the eczema to disappear was to change the antiseptic often. As a preventive, he recommended rubbing the hands, after washing them with soap, with a mixture of equal parts of vaseline, lanolin, olive oil, and glycerin. Dr. Rotter recommended an ointment composed of from one to two parts of formol, one hundred parts each of zinc oxide and talc, and two hundred parts of vaseline.

THE FAUNA OF CORPSES.

A BOOK on this subject, by Dr. P. Mégnin, has lately been published in Paris. It is of a medico-legal character, and deals with the insects that prey upon dead bodies, the *travailleurs de la mort*. Various kinds of these insects, it seems, make their appearance at definite points of time, so that a knowledge of the order, etc., of their coming will, it is maintained, enable an investigator to determine the length of time that has elapsed since death took place, provided it does not exceed three years.

PROFESSIONAL SECRECY IN BELGIUM.

THE *Gazette médicale de Paris* states that a judicial decision given in Brussels is to the effect that a physician is never obliged, except in cases where the law expressly orders to the contrary, to reveal secrets confided to him in his professional capacity, even if the person who intrusted them to him consents to their being laid before a court.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending August 28, 1894:

DISEASES.	Week ending Aug. 21.		Week ending Aug. 28.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	24	8	29	3
Scarlet fever.....	20	1	22	3
Cerebro-spinal meningitis..	0	0	0	1
Measles.....	27	1	13	1
Diphtheria.....	109	26	110	33
Small-pox.....	2	0	9	0
Tuberculosis.....	101	106	53	124

Changes of Address.—Dr. S. C. Baldwin, from Helena, Montana, to Salt Lake City, Utah; Dr. M. S. Kakels, to No. 814 Lexington Avenue; Dr. Charles Huntoon Knight, to No. 147 West Fifty-seventh Street; Dr. Edward N. Liell, to No. 109 West Eighty-fourth Street.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from August 13 to August 25, 1894:*

WAKEMAN, WILLIAM J., Captain and Assistant Surgeon, is hereby granted leave of absence for one month, to take effect upon the completion of his present duty at the Fort Thomas Rifle Range.

PRICE, CURTIS E., Major and Surgeon, upon the expiration of his present leave of absence, is ordered to Fort Supply, Oklahoma Territory, for duty at that station, relieving CORBUSIER, WILLIAM H., Captain and Assistant Surgeon. Captain Corbusier, on being relieved by Major Price, is ordered to New York city, N. Y., for duty as Attending Surgeon and Examiner of Recruits, relieving SHANNON, WILLIAM C., Captain and Assistant Surgeon. Captain Shannon, on being thus relieved, will report in person to Colonel C. H. Alden, Assistant Surgeon General, president of examining board, for examination for promotion.

MEARNS, EDGAR A., Captain and Assistant Surgeon, will be relieved from duty with the commission appointed for the location and marking of the boundary between Mexico and the United States and ordered to Fort Myer, Virginia, for duty, relieving PHILLIPS, JOHN L., Captain and Assistant Surgeon. Captain Phillips, on being thus relieved, is or-

dered to Fort McKinney, Wyoming, for duty at that post, relieving BUSHNELL, GEORGE E., Captain and Assistant Surgeon. Captain Bushnell, on being thus relieved, is ordered to Davids Island, New York, for duty, relieving ROBINSON, SAMUEL Q., Captain and Assistant Surgeon. Captain Robinson, on being thus relieved, is ordered to Philadelphia, Pa., for duty as Attending Surgeon and Examiner of Recruits.

PHILLIPS, JOHN L., Captain and Assistant Surgeon, is granted leave of absence for two months, to take effect on or about September 1, 1894.

BREWER, MADISON M., First Lieutenant and Assistant Surgeon, is granted leave of absence for three months, to take effect on or about October 1, 1894.

CORBUSIER, WILLIAM H., Captain and Assistant Surgeon, is granted leave of absence for one month, to take effect on being relieved from duty at Fort Supply, Oklahoma Territory.

WILSON, WILLIAM H., First Lieutenant and Assistant Surgeon, will be relieved from temporary duty in the Department of Dakota by the commanding general of that department when his services are no longer required with troops in the field, and will return to his proper station.

BRADLEY, ALFRED E., Captain and Assistant Surgeon, is granted leave of absence for one month, with permission to apply for an extension of one month.

Marine-Hospital Service.—*Official List of the Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the Five Weeks ending August 25, 1894:*

BAILHACHE, P. H., Surgeon. Granted leave of absence for five days. August 3, 1894.

HAMILTON, J. B., Surgeon. Granted leave of absence for five days. August 16, 1894.

SAWTELLE, H. W., Surgeon. Granted leave of absence for five days. August 12, 1894.

GASSAWAY, J. M., Surgeon. Granted leave of absence for two days. August 11, 1894.

STONER, G. W., Surgeon. Granted leave of absence for seven days. July 28, 1894.

IRWIN, FAIRFAX, Surgeon. To proceed to Brussels, Belgium, for special duty. July 24, 1894. To Rotterdam, Netherlands. July 27, 1894. To proceed to Hull, Liverpool, and other English ports on special duty. August 9, 1894.

MEAD, F. W., Surgeon. Granted leave of absence for thirty days. August 4, 1894.

BANKS, C. E., Passed Assistant Surgeon. To proceed to Halifax, N. S., for special duty. August 16, 1894.

GLENNAN, A. H., Passed Assistant Surgeon. Granted leave of absence for six days. August 14, 1894.

BROOKS, S. D., Passed Assistant Surgeon. To proceed to Duluth, Minn., and Superior, Wis., as Inspector. July 24, 1894.

WHITE, J. H., Passed Assistant Surgeon. Relieved from duty at Savannah, Ga., and ordered to report to the medical officer in command of the service at New York for duty. August 6, 1894.

CARRINGTON, P. M., Passed Assistant Surgeon. To proceed to Evansville, Ind., for duty. August 6, 1894.

KINYOUN, J. J., Passed Assistant Surgeon. To proceed to Budapest, Austria, to represent the department at the International Congress of Hygiene and Demography. August 14, 1894.

VAUGHAN, G. T., Passed Assistant Surgeon. Granted leave of absence for six months. August 23, 1894.

WERTENBAKER, C. P. To report at Bureau for instructions. August 4, 1894. To proceed to Cape Charles Quarantine

for temporary duty. August 7, 1894. To proceed to Delaware Breakwater Quarantine for duty. August 20, 1894.

GARDNER, C. H., Assistant Surgeon. Granted leave of absence for fifteen days. August 18, 1894.

NORMAN, SEATON, Assistant Surgeon. To proceed to Baltimore, Md., for duty. August 6, 1894.

SPRAGUE, E. K., Assistant Surgeon. To inspect unserviceable property at St. Louis, Mo. July 26, 1894.

Promotion.

HOUGHTON, E. R., Assistant Surgeon. Commissioned as Passed Assistant Surgeon. July 20, 1894.

Letters to the Editor.

A REVIEW OF THE SMALL-POX EPIDEMIC AT TEXARKANA.

TEXARKANA, TEXAS, August 20, 1894.

To the Editor of the *New York Medical Journal*:

SIR: Early in the month of March an exanthematous disease made its appearance in the twin city of Texarkana, Texas and Arkansas.

The earlier cases being the mild discrete form of variola, led the physicians here into the mistaken diagnosis of severe vari-cella. I myself, having been successfully vaccinated, contracted the disease, and in due time had a very mild attack of varioloid. Still no physician here was disposed to regard the disease with any amount of anxiety, the city health officer maintaining to the last that we were in the midst of an epidemic of chicken-pox.

But as the epidemic grew older the virulence of the disease manifested itself more markedly, necessitating the establishment of a pest house and quarantine station. I was appointed to take charge of these quarters and was thus enabled to see and study small-pox in all its varied forms. At least eighty patients reported for treatment, and an equal number were held at the detention station as suspected cases. We noted ages varying from four months to sixty-five years, thus proving conclusively that no age is exempt from an attack of the "red pest." Of these patients we noted twenty-seven, or more than thirty-three per cent., to be children under twelve years of age. The mortality of this number was *nil*.

Classified as to sex, we noted forty-three females and thirty-seven males; hence sex cuts no appreciable figure as to susceptibility.

As to variety of eruption, we noted the following: Twenty-four cases of severe confluent, two cases of hæmorrhagic, eight cases of simple varioloid, and forty-six cases of well-formed discrete small-pox.

The mortality was confined entirely to the hæmorrhagic and confluent forms, the two former and eight of the latter terminating fatally.

The treatment of these patients was both simple and inexpensive. Antipyretics were used to combat temperature. Magnesium sulphate and glycerin suppositories were prescribed for their laxative effects. "Bromidia" and the sulphate of morphine were used to counteract and curtail any tendency to delirium, which condition was wont to manifest itself more especially during the stage of suppurative fever. Throat symptoms were controlled by solutions of potassium chlorate, and if these symptoms were severe resort was had to the following preparation:

R Potassii chloratis. ʒ ij;
Ext. hydrastis fl. f ʒ jss.;
Acidi carbolic. gtt. viij;
Tinct. capsici. gtt. vj;
Listerin f ʒ j;
Aq. rosæ, ... q. s. ad f ʒ iv. M.

Sig.: Use as a gargle every two hours.

We found this to be a very efficient prescription in cases of severe sore throat.

Topical applications consisted of sponging the entire cutaneous surface with a five-per-cent. solution of carbolic acid and anointing it with a five-per-cent. carbolized solution in olive oil.

Cleanliness and attention to patients in time of need were our sheet anchor. Two weeks ago to-day (August 6, 1894) I was called to see a patient at Fulton, Ark., a distance of twenty miles. The physicians there were unwilling to come in contact with small-pox. I found a patient, aged thirty-five years, a woman with a well-marked discrete eruption. I forthwith secured a nurse, and, with the plain treatment above narrated, can report the patient convalescing well and out of danger.

One fact in the treatment of small-pox has been fixed in my mind. It is this: There is no excuse for permitting a case of varioloid, or of discrete or the mild form of confluent small-pox, to terminate fatally in a patient otherwise healthy.

M. E. STEVENS, M. D.

ON THE ALLEGED SPECIAL LIABILITY OF BENIGN LARYNGEAL GROWTHS TO UNDERGO MALIGNANT DEGENERATION AFTER INTRALARYNGEAL OPERATIONS.

LONDON, August 15, 1894.

To the Editor of the *New York Medical Journal*:

SIR: The method of Mr. Lennox Browne's letter published in the *New York Medical Journal* of August 4th will not surprise any one acquainted with his controversial tactics. It is constructed upon the old recipe: "No case, abuse plaintiff's attorney!" Mr. Browne, exactly as on previous occasions, attempts to pass with a few high-sounding phrases over the real question at issue, and to turn the tables by representing a protest against the perversion of scientific facts as the mere outcome of paltry personal spite. In speaking of Dr. Newman's and my own "attempt by a side blast to discredit his contribution" he conveniently forgets that it was *he* who attempted to discredit the weight of our statements by misrepresenting our facts, and that we only acted in self-defense; in complaining of our 'notions of honorable fighting' he equally conveniently forgets that *he* never informed us what use he had made in a textbook, published in America, of our unambiguous words, and that we, too, had seen his article only by a chance visit to a public library. Thus again he simply reverses the facts of the case. His insinuations of disloyalty against the late Sir Morell Mackenzie I can afford to treat with the contempt they deserve. I have frankly opposed Sir Morell when I considered this to be my duty while he was alive, but I have not misrepresented his views and statements nor distorted his cases after he was dead.

But, sir, all this is wide of the mark. The real question stands thus: I have brought a series of grave charges against Mr. Browne and I have given chapter and verse for every charge I made. Mr. Browne does neither attempt to traverse a single one of the facts I have stated nor to apologize for the inexcusable manipulations he has permitted himself; and his reply, after some empty protestations of good faith, which are perfectly meaningless after his actual deeds, in his own words amounts to this: that "such paltry matters are unworthy Transatlantic publication—at any rate, he could be no party to a correspondence on them under the obvious disadvantages attendant thereon."

I need not ask you, sir, whether your opinion coincides with that of Mr. Browne, because you would probably not have extended to us the hospitality of your journal if you had considered the charges we brought so "paltry" as to be unworthy of Transatlantic publication, but I should be greatly obliged to you if you would in an editorial addendum to this letter state your views as to the *ethical* aspect of the whole question. A reply to that effect, it is true, has already been given by the editors of two of your English contemporaries—viz., the editors of the *Lancet* and of the *Glasgow Medical Journal*. Dr. Newman raised a protest against Mr. Browne's literary methods in these two journals, limiting himself strictly, however, to the perversion of his own statements of which Mr. Browne had been guilty. A controversy in both journals followed, which in both instances was ended by editorial notes, which I here verbatim append:

Editorial note in the *Glasgow Medical Journal*:

"We publish Mr. Lennox Browne's letter, but must at the same time express regret at its tone and method. Dr. Newman pointed out that Mr. Browne, in what he cites as an *exact* quotation, alters an important word, thereby changing the meaning entirely. Mr. Browne does not deny altering the word, and we are convinced that his contention that he has not altered the meaning is not made good. When an author who is citing a case as cancerous from the onset states that at one period he believed it to be innocent, it is altering his meaning entirely to substitute 'demonstrated' for 'believed,' and to make it appear that he still believes it to be innocent at the time of the first examination. Mr. Browne's further claim that Dr. Newman was at one time an adherent of the opinion that such innocent growths may by surgical interference be transformed into malignant tumors seems to us to be equally devoid of foundation. The passages quoted by Mr. Browne from Dr. Newman's writings show that the latter believes in the transformation of innocent into malignant growths, but we have not discovered a single word favoring the idea that he ever believed that instrumental interference is an element in producing such transformation. The long quotations in which Mr. Browne indulges are thus entirely wide of the mark and do not bear out his contention. We have made these remarks without consulting Dr. Newman, and simply to bring back the reader to the points in dispute, which Mr. Browne obscures in a cloud of words.

"EDITORS *G. M. J.*"

Editorial note in the *Lancet*, July 14, 1894:

"*.* The matters in dispute between Dr. Newman and Mr. Lennox Browne have been much simplified by Mr. Browne's last letter to us. It will be seen that he expresses regret for substituting one word for another in quoting or abstracting a report of one of Dr. Newman's cases. We highly approve of this apology, and only regret that it did not come sooner. It is always incumbent in public controversy, in quoting an author, to do so with absolute accuracy, using only the *ipsissima verba*; half the misunderstandings which occur between public men arise from the neglect of this obvious rule. The rule is, of course, most binding in matters so grave as that of surgical interference in cases of intralaryngeal growth. It is quite open to Mr. Browne to argue in favor of his views from the published cases of Dr. Newman or any other laryngologist, but he does not advance his argument by misquoting the statements of those whom he criticises. We are not called upon on this occasion to express an opinion on one of the most serious and urgent questions of surgery which has been projected into prominence by historical events and controversies of recent years. If such a correspondence as that we have published settles anything it settles this: that even from an expert's view there is much difficulty in defining the course of professional duty in any given

case, and that in any given case much responsibility will rest on the general advisers of the patient. We can not devote further space to this correspondence.—ED. L."

Now, sir, although the editors of both these journals, as you and your readers will have seen from the foregoing notes, have spoken plainly enough, their judgment refers, as it were, to one third only of the evidence which I have laid before you and your readers. My charges are even more serious than Dr. Newman's, because from them it appears that Dr. Newman's case does not stand alone, and that Mr. Browne has in fact resorted to a perfect *system* of misrepresentations of the facts of his opponents. I can not believe that Americans should judge less severely of breaches of literary good faith than their English *confrères*.

What I, with a slight variation of Dr. Newman's words in his letter to the editors of the *Lancet* of July 7th, wish to know is this: Are medical ethics merely nominal, and good enough to be preached to students in introductory addresses, but "paltry" enough to be with impunity disregarded in practice, or is there a moral obligation on the part of every member of the profession to truly render the exact meaning of the unambiguous words of other writers? FELIX SEMON.

. We coincide entirely in our English contemporaries' comments on this controversy, and can not consent to its further prolongation in our columns. In our opinion, it goes without saying that ethical principles are good for nothing if they are not to be lived up to, and that an injurious misquotation, even if it is made by accident, should always be acknowledged promptly and without evasion.

Proceedings of Societies.

AMERICAN GYNÆCOLOGICAL SOCIETY.

Nineteenth Annual Meeting, held in Washington on Tuesday Wednesday, and Thursday, May 29, 30, and 31, 1894.

The President, Dr. WILLIAM T. LUSK, of New York, in the Chair.

(Continued from page 123.)

The Proper Position of Recent Surgical Methods in the Treatment of Uterine Fibroids.—In the discussion of the president's address on this subject Dr. WILLIAM M. POLK, of New York, thought that the tendency was in the direction of myomectomy as against hysterectomy. It was really an easy matter to remove the uterus when it was found that no other operation would answer the purpose; but the retaining of the uterus was of paramount importance. A working organ was what we should all try to save to the woman. He was decidedly in favor of myomectomy, and thought that it was quite as feasible and safe to remove through the peritonæum as through the vagina. Another point, a pyosalpinx did not necessarily mean that ovulation could not go on, and that therefore it was proper to perform oophorectomy or hysterectomy.

Dr. BALDY was in favor of complete removal of all the generative structures; no uterine tissue should be left, for fear of leaving a nidus for tuberculosis. The burning question was that of myomectomy as against hysterectomy; but then there would be an uncertainty of complete removal of all diseased tissue, particularly if done by the vagina. Certainly, when removed by the vagina the condition of the appendages would not be known. He was of the opinion that, if removal was to be attempted at all, it should be done by the abdomen, where visual examination of the parts could be carried on. Myomectomy

from above had been abandoned on account of the great dangers from hæmorrhage from the uterine tissues, which would shrink in spite of all ligatures. There were, no doubt, some cases that could be treated in that way, but hysterectomy did away with all such dangers. Ligation of the uterine artery might cause shrinkage of the tumor, but collateral circulation might be set up and the growth nourished in that way.

Dr. E. W. CUSHING said that, when certain points were considered, he did not see how myomectomy could take precedence over hysterectomy. When a uterus was myomatous it was so diseased that its retention was of no benefit. When there were pain and hæmorrhage there was always an involvement of the tubes and ovaries. In an operation from below, one could not know if all diseased tissue were removed or not. Vaginal hysterectomy might answer in the case of small tumors, but in large ones, with their many complications, the abdominal operation of complete removal should certainly have the preference.

Dr. S. C. GORDON said that, when a woman came to him for advice for fibroids, it was his practice to use conservatism first, but, in any case, to remove all growths that could be removed by the vagina. He did not believe in vaginal hysterectomy at all; he did not consider it a good procedure. He could not understand why structures should be saved that were already good for nothing.

Dr. W. GILL WYLIE said that if all cases were uncomplicated fibroids then Dr. Lusk's methods might be considered feasible, but the real conditions were so different that in most cases, to remove all disease, hysterectomy should be done. He dealt with women of different ages differently. In women who were unmarried and did not expect to be married and be called upon for generative purposes he would remove the whole uterus. In young married women he would curette and treat by palliative measures, or do myomectomy, leaving the tubes and ovaries. In women over thirty-five or forty he would do hysterectomy. He found that women who had had fibroids were more prone to cancer than others. As to the different forms of removal, he adapted himself to the requirements of the particular case, and made either complete or incomplete removal, either abdominally or by the vagina, as his judgment dictated.

Dr. HENRY T. BYFORD, of Chicago, had expected to read a paper on the subject of the results of vaginal fixation of the stump in abdominal hysterectomy, but he now confined himself to a brief description of his operation and to the discussion of Dr. Lusk's paper. He agreed almost entirely with Dr. Lusk and said that he had no patience with those operators that advocated complete removal in all cases. He was very much in favor of marked conservatism in the treatment of fibroids, for he had had striking examples in the many cases which he had inherited that had been under observation for ten and fifteen years. The patients had been kept comfortable by palliative treatment, such as packing, curetting, and so forth, without radical operation. He had never seen any of them come back with cancer. It was his method to attempt to bring down the growth, to cause it to become polypoid, by means of ergot internally administered and traction on the tumor, then to dilate the cervix and enucleate. Where the operation had to be done the pedicle should be treated extraperitoneally above, or else the cervix taken out, turning the stump into the vagina and fixing it. Drainage would be good.

Dr. G. J. ENGELMANN was sorry to find such a feeling against the vaginal method of dealing with these cases—vaginal hysterectomy had such an advantage over the abdominal method in that there was an absence of shock and of exposure to the many dangers that opening the abdomen entailed. He agreed that there was an absence of good hæmostatic instruments for use in such surgical procedures as were under discussion.

Dr. A. P. DUDLEY thought that the gist of Dr. Lusk's paper was in the right direction; he believed that myomectomy could be done by the suprapubic method or by the vagina. He described the case of a young unmarried woman, twenty-six years of age, from whom he had removed, abdominally, a fibrous tumor from the uterus. The uterus was sewed up, the recovery was perfect, and the woman was now in good health. In a multipara, where the cervix was much diseased and the woman was past the meridian, he advocated the complete operation as giving the best results.

Dr. E. C. DUDLEY thought that the wisest plan was to be guided by the condition found, doing hysterectomy in some and myomectomy in others. He thought, however, that the dangers from myomectomy were very great. Vaginal hysterectomy offered good results in the large majority of cases. The dangers were in reality not so great, either immediately or in regard to incomplete cure, as had been indicated by some of the speakers. He and Dr. Byford had operated many times, doing vaginal hysterectomy, with no mortality whatever.

Dr. W. H. WATHEN thought that myomectomy ought to be the operation in as many cases as possible, to avoid taking from the woman her childbearing organ.

The PRESIDENT hoped that the next time this important subject was brought up for discussion we should have passed the statistical stage and know the exact position of these two operations, and know what percentage of patients had been cured and what number had only recovered.

Rupture of the Uterus; Palliative versus Surgical Treatment.

Dr. CHARLES M. GREEN read a paper on this subject. He said that these conditions when discovered must be treated as the gravity of the case presented, in relation to the extent of the tear and the state of the patient. By palliative treatment in this class of cases was meant sustaining the patient by nourishment and stimulation, the use of antiseptics, and the arrest of hæmorrhage by means of packing and so forth. Laparotomy had so many fascinations for the enthusiastic operator that many had done it after rupture; but it did not offer the good results that it seemed to. He reported several cases where recovery had taken place after rupture, under palliative treatment. One was in a multiparous woman, and one was that of a non-gravid uterus that was being dilated, where the tear was quite extensive. This method was by far the best plan to adopt rather than to expose patients already in a dangerous condition to the shock of an abdominal section and the fallacious attempt to stop hæmorrhage by suturing the uterus. The tear was usually a separation of the tissues in an uneven, jagged manner impossible of apposition, and the tissues were generally so friable that sutures would not hold if inserted. The palliative treatment consisted of compression bandages, cold irrigation, tamponing the rent with wicking and gauze, and drainage. Laparotomy should never be attempted unless the issue seemed sure to be fatal and the child had escaped through the tear into the abdominal cavity and could not be extracted through the natural passages. Under such circumstances the abdomen should be opened, the child removed, and the uterus sutured. To assist in securing contraction of the uterus after the extraction of the child, uterine massage, ice compresses, and bimanual pressure should be used. Serious hæmorrhage was always present in these cases, but a tampon properly applied was usually satisfactory. There was no need of irrigating through the rent into the abdominal cavity unless the contents of the amniotic sac had been emptied into it. What would be better would be the injection of a hot physiological salt solution into the cavity, from which absorption would take place and the volume of the blood be increased. It was a fact that the peritonæum was very tolerant of aseptic blood, and therefore there was no need to

make much of an effort to get rid of it at once. He would make a final plea for general palliative measures to be given a fair trial in rupture of the uterus. Where the hæmorrhage was uncontrollable, abdominal section would have to be resorted to.

Dr. MALCOLM McLEAN, of New York, was satisfied that specialism had its dangers, and that the mad race of rivalry had dwarfed the minds of many and had therefore made it dangerous for patients. This statement could be applied to the operation of laparotomy for rupture of the uterus, where, in so many instances, life could have been saved by palliative measures which could have been applied by the attending obstetrician. Palliative treatment was the proper procedure in almost all the cases. Given a case of labor which had been progressing favorably and all at once there was a sudden recession of the presenting part, rupture should be suspected, for this was usually one of the first signs. The speaker did not favor version, but where the child had escaped above the pelvis it was hard to apply the forceps, and the hand would have to be introduced into the pelvis and some part of the child grasped and brought down, at the same time the condition of the wound explored. If the intestines or the placenta and the contents of the bag of waters had escaped into the abdominal cavity, then the woman should be given a chance for her life by an abdominal section. The preconceived idea that rupture of the uterus required laparotomy was a very great mistake, for, with reasonable and judicious assistance, Nature did much to restore a torn uterus and check hæmorrhage. Where recession of a presenting part took place action must be prompt, so as not to allow of the complete escape of the child and the formation of a large hæmatoma, which would greatly hinder the successful doing of a laparotomy if it was finally necessary. He reported a case where the child had been pushed through a rent with the membranes intact and surrounding it and completely shutting out from the peritoneal cavity any fluid that would otherwise have escaped into it. There was no doubt that there was a distinct field for palliative treatment of rupture of the uterus.

The PRESIDENT, speaking from his personal experience, said that in incomplete rupture situated in the posterior wall of the uterus there was no doubt that palliative measures were the proper thing. He had always found that, if the tear was situated anteriorly, the case terminated fatally. Where the rupture was complete, wishing to give every woman a chance, he would feel better if he brought together the peritonæum and closed up the wound; as for sewing up the uterus, it was a fallacy and a snare. Where the women recovered without having this much done, they were invalided; they would seem to be well for a time, but their existence would be shortened. He did not think much of Porro's operation in this class of case. He advised complete removal of the uterus, where the tear was considerable and the tissue much infiltrated, as offering the best results.

Dr. E. R. REYNOLDS thought that the subject ought to be divided into rupture in the various situations, because all classes could not be treated in the same manner. Those occurring in any other situation, excepting in the posterior wall low down, should be treated, in his opinion, by complete removal of the uterus.

Dr. E. P. DAVIS called attention to the pathology in these cases. Rupture was oftener found in multiparous women who had suffered previously from a septic condition of the uterus, and it was for this reason that much could not be hoped for unless the uterus was completely removed.

Dr. POLK said that these cases were always grave; when he found a rupture he examined to see if it was complete or incomplete, and to direct his measures accordingly. The main thing was to empty the uterus and see that nothing was left behind,

and this would be found hard to do through the vagina. Although he had frequently irrigated through this passage, when he had found it necessary to open from above he had discovered that the water had not cleansed the abdominal cavity at all. In the main it was better to deliver by the natural passages if possible, but to make a small opening and cleanse from above. Where the uterus was much mutilated he favored complete removal.

Dr. MURRAY said that the cases should be treated according to whether they were complete or incomplete tears. He had seen four cases, two of which had been fatal and two had ended in recovery. In the first case the symptoms had been normal up to a certain point, when all at once the pains had ceased and the physician had delivered with forceps. Everything had seemed to be right for some hours, when the patient sank into collapse.

An examination disclosed rupture into the broad ligament. The abdominal cavity was opened, and the peritonæum found very much thickened and œdematous. The tear was nearly two thirds around the cervix and up through the broad ligament. On account of the condition of the peritonæum, it was found impossible to remove the uterus with safety. It was thought, considering the condition found, that palliative measures would be the best, for, with the operation and shock, the patient could not survive. The next case had presented pretty much the same conditions, but had come under notice too late to make palliative treatment effective. The other two patients had been saved by palliative measures entirely. Where the rupture had taken place into the peritonæum, it was better to open the abdomen and drain.

Dr. McLEAN wanted to have it borne in mind that, if the foetal membranes were intact, even if the rupture had been into the peritonæum, they were protective of infectious material being introduced, and the case ought to be treated differently under those circumstances. The simple oozing of aseptic blood into the peritoneal cavity would do no harm.

(To be concluded.)

Reports on the Progress of Medicine.

ANATOMY.

By MATTHIAS L. FOSTER, M. D.,
ASSISTANT SURGEON, MANHATTAN EYE AND EAR HOSPITAL.

Malformation of the Aorta.—Tyrie (*Jour. of Anat. and Physiol.*, April, 1894) has found the following strange malformation of the aorta.

The arch and descending aorta were uniformly dilated to a point immediately above the origin of the cœliac axis, where the vessel became abruptly constricted to the size of the subclavian artery and, maintaining this caliber, descended to the middle of the fourth lumbar vertebra, where it bifurcated into the common iliac, the right placed anterior to the left. The cœliac axis, two inches long, divided into the hepatic and coronary. From the right branch of the former a trunk descended to the corresponding kidney, passing anterior to the suprarenal body. The splenic had an independent origin from the aorta. The superior mesenteric arose from the left lateral aspect of the aorta. The right aortic suprarenal arose from the left anterior aspect and the left aortic suprarenal from the right posterior aspect. The left renal arteries were five, three arising from the posterior aspect of the aorta, one from the common iliac, and one from the colica sinistra. The right renal arteries were three, two

arising from the anterior aspect and one from the right hepatic. The inferior mesenteric arose from the left lateral aspect.

The appearance of the abdominal aorta, the modes and points of origin of its branches, and the relations of the common iliaes to each other at their origin, tend to support the view that it had undergone axial rotation from right to left to the extent of 90°. There was no condition observable in the region of the constricted portion which could be looked on as a cause. There were some other vascular anomalies in the abdomen, but nothing to indicate whether the deviation was congenital, foetal, or postfoetal.

Musculus Saphenus.—The same author (*ibid.*) notes the following muscular anomaly, found in a man sixty-five years old. Beneath the deep fascia of the thigh was a transverse muscular slip. Its origin was in direct continuity with the superficial fibers of the outer extremity of Poupert's ligament. The tendinous fibers inclined downward and inward along the inner border of the sartorius for about an inch. Here muscular fibers were substituted; and the muscle passing inward over the iliacus and anterior crural nerve crossed over the bifurcation of the common femoral, at the inner side of which it hooked round the loop formed by the junction of the saphenous with the femoral vein, and, ascending obliquely inward over the pectineus and tendon of adductor longus, finally became blended with the inner end of Poupert's ligament. Tendinous fibers were substituted in the last inch. The nerve supply on the right side was from the hypogastric branch of the ilio-hypogastric.

It seemed to be a detached portion of the external oblique and the writer suggests this explanation: At an early period of foetal life the external somatic layer (extending, perhaps, further back than usual) was pierced by the internal saphenous on its way to join the deep vein. In the course of development a regression of the confluence has taken place and the included muscular fibers have, as a consequence, been looped backward. No trace of varicosity of the vein could be found.

The writer has not found any previous record of this structure, and from its probable ætiological relationship to the vein named it *musculus saphenus*.

Left Kidney Displaced and Immovable.—Farquharson (*ibid.*) reports the following displacement found in the body of a young woman twenty-two years old:

The left kidney lay in front of the bodies of the first sacral and fifth lumbar vertebrae and the lower half of the body of the fourth lumbar vertebra, slightly to the left of the mesial plane. The upper portion of the left border overlapped the psoas muscle, but the greater part of the kidney was internal to the muscle. Its upper extremity lay over the bifurcation of the aorta. In front it was covered with peritonæum and was fixed in position by areolar tissue. The long axis was almost vertical, but the usual arrangement of the organ was reversed; the convex border looked toward the right, and the hilum toward the left side. The ureter entered the pelvic cavity in front of the lower extremity of the kidney, extending downward from the hilum, which, covered with a layer of fat, was situated on the left and anterior part of the organ, somewhat nearer its upper than its lower extremity. On its convex anterior surface the organ was distinctly lobulated. Before reaching the hilum the ureter became dilated and funnel shaped, and then split into branches which subdivided and were distributed around the circumference of the hilum, passing to the apices of the pyramids. The blood supply was by two branches from the aorta. The kidney weighed two ounces and appeared normal in structure on section. The suprarenal capsule occupied its usual place in the abdomen.

Single Unilateral Kidney.—Tweedy (*ibid.*) reports a case in which a single, much enlarged kidney situated on the left

side was found on autopsy. The points which render this case worthy of special notice are:

1. The condition was evidently congenital. No trace could be found of a right renal artery or vein. There was no right ureter; that belonging to the left kidney was single and wider in caliber than a normal ureter.

2. There were no indications during life that this condition was present, and the cause of death was in no way connected with the absence of the right kidney.

3. No anatomical defects were found in other organs on the affected side.

4. The patient was a female, in whom the condition is more rarely found. The left kidney is also more commonly absent than the right.

Malformation of the Heart.—Probyn-Williams (*ibid.*) describes thus a heart removed from an infant who previous to death had exhibited symptoms pointing toward a patent foramen ovale of the heart:

On opening the thorax the heart was seen to be of the normal size, but the apex was to the right of the mesial plane, and the whole axis of the organ was the reverse of the usual one. The auricle when opened proved to be single. It was of about the usual size of the two together and had a right and left appendix. Its walls were of normal thickness. An abortive attempt at the formation of a septum was found about the middle of the upper part of the posterior wall, and, on holding the specimen in a certain position, a rudimentary fenestra ovale could be detected in its middle. The auricle was separated from the ventricles by a vestibule common to the three cavities. The cavities of the ventricles were normal in size and in the thickness of their walls; there were no perforations in the interventricular septum. The only valves in the interior of the heart were two in number. They arose from a ring forming the demarcation between the auricle and the auriculo-ventricular vestibule and were situated one over either extremity of the interventricular septum. Single above, each valve before reaching the septum divided into two parts, one going to each ventricle. Only one vessel opened into the auricle—viz., the superior vena cava, which was larger than usual. At the upper part of the right ventricle, very close to the auricle, was a rudimentary pulmonary artery, not patent at its cardiac end. The aorta arose from the left ventricle in the normal manner. It gave off a well-developed ductus arteriosus which was joined by the rudimentary pulmonary artery and later divided into the two pulmonary arteries. On the left side was a pulmonary vein which opened into the superior vena cava. On the right side was no definite pulmonary vein, only a rudimentary loop going from one part of the lung to the other. For practical purposes the heart consisted of one auricle and one ventricle, as the right ventricle had no vessel of exit.

Double Vagina.—Robb (*Johns Hopkins Hospital Bulletin*, April, 1894) reports a case of double vagina in which the smaller of the two canals was disposed laterally, terminated in a blind sac, was not connected at all with the uterus, and was not associated with any malformation of that organ. Regarding its origin, the points named might be adduced as evidence that it originated from the third portion of the Wolffian duct, which runs down on the lateral wall of the vagina and sometimes persists; but on account of its size Dr. Robb inclines to accept the view that the case represents a somewhat unusual double vagina from noncoalescence of the lower third portions of the Müllerian ducts.

Total Atresia of the External Genitalia and of the Rectum.—Marchand (*Berliner klin. Wochenschrift*, 1894, No. 2) exhibited at the medical convention in Marburg a fetus which had in the region of the symphysis a scrotum-like mass without

external opening. Examination showed that the fetus was a female. The uterus was bicornate, hanging from a long, rounded sac which was above the pelvis, and had no direct communication with the external parts. The sac contained a thick, whitish mass which was composed mainly of pavement epithelia, rich in glycogen. The very small bladder was placed at the left of this sac, and from it two short, blind pouches extended upward, representing the ureters. There was no trace of either kidney. The lower end of the large intestine formed a sac which was distended with meconium.

Absence of Sternal Origin of the Pectoralis Major.—Young (*Lancet*, Jan. 6, 1894) has found in a youth sixteen years of age the sternal origin of the pectoralis major of the left side to be quite absent. The patient stated that his chest had always been in that condition and that there was no weakness on that side. The clavicular portion was not developed as well on the left side as on the right, but the left deltoid was the more developed. The only other malformation was partial webbing of the fore and middle fingers of the left hand.

Lobster-claw Deformity of the Feet and Partial Suppression of the Fingers.—Tubby (*ibid.*, Feb. 17, 1894) gives an excellent description of a patient with this deformity, together with a remarkable family history. The feet were nearly symmetrical in appearance and size and resembled a lobster's claw. The second, third, and fourth toes were suppressed; the great toe was much lengthened, had two phalanges, but no nail. The fifth toe was also overgrown, had three phalanges and a well-grown nail. Between these digits was a wide sulcus, and the great toe, in addition to the movements of flexion and extension, had the power of opposing itself to the remaining toe so that in its action and grasping movements it resembled the thumb of man and the opposing toe of the quadruped. The hands had but one finger each, corresponding to the fifth finger, all the others being entirely suppressed.

The deformity has persisted nearly constantly through four generations, and in the later generations is more marked than in the earlier. The curious shape of the feet is more persistent than the suppression of the fingers. The ancestors, J. G. and wife, were perfectly formed, but of twenty-two descendants thirteen had two toes on each foot with prehensile movements of the great toe; one had one toe on each foot, and one had one toe on the left and two on the right foot. In no instance could any relationship be traced between husband and wife in any one generation.

Miscellany.

Persistent Vomiting treated by Suggestion.—The *Journal de clinique et de thérapeutique infantiles* for August 2d publishes the following communication made by M. Dumontpallier at a recent meeting of the *Société d'hypnologie*, a report of which appears in the *Bulletin médical*: A young girl, fourteen years old, had been brought to the author to be examined. She appeared to him to be very nervous and in every way manifested symptoms of hysteria, and the examination confirmed his impressions. She had had nervous attacks, and had been subject to contracture of the lower limbs, which was especially manifested by double equino-varus. The patient had been subjected to different kinds of treatment, but without success. For six months she had vomited after every meal. Dr. Dumontpallier had ascertained that she was sensitivo-sensorially hemianæsthetic on the right side, with diminution of the field of

vision on the same side. Menstruation had stopped for several months, but there had been a slight flow of a bloody character, with more or less leucorrhœa. The patient had become thin, but the loss of flesh had not been in proportion to the persistency and the abundance of the vomiting. Her sleep had often been agitated and while sleeping she would ask for a drink. From the first day, by means of simple verbal suggestion, the author had easily produced hypnosis with amnesia on awaking, and, while the patient had been in this hypnotic condition, he had assured her that the vomiting would not return and that she would have no more nervous attacks or any contractures. Since the first sitting the vomiting had been less abundant, and after the third sitting it had completely stopped. About two months later the patient had again been attacked with contracture of the lower limbs, accompanied with severe pain in the knees, but the vomiting had not returned. Hypnotic suggestion was again resorted to and the pains in the knees and the contractures had been diminished. On the following day menstruation appeared and the contractures had almost entirely ceased. For a few days there had been a little hesitation while walking, but no return of the vomiting, and the author had assured the patient that she would soon be completely cured. A month afterward he had seen the patient and there had been no return of any of the symptoms. Dr. Dumontpallier said that he could not consider this patient as being completely cured, as she had been hysterical, and new hysterical manifestations might occur again, but there was no doubt that the hypnotic suggestion had rapidly overcome the vomiting, which no other treatment had been able to arrest. Furthermore, the patient's general condition had also been very favorably changed, as the regular appearance of menstruation testified.

Egyptian Ophthalmia.—The *Revue internationale de bibliographie médicale* for July 25th contains an abstract of a review of a work on this subject which appeared in the *Wiener klinische Wochenschrift*. Dr. Fuchs spent the winter in Egypt, where he made a study of this disease, and he ascertained how much this ophthalmia had spread and how common blindness was. He thought at first, with Hirschberg, that Egyptian ophthalmia was the same affection as European trachoma, with this difference, that the former was more acute; but his researches have led him to change his opinion. He groups the cases that he has seen into four classes: 1. Those of persons who have been cured of slight trachoma. 2. Cases of recent trachoma in which there is considerable papillary hypertrophy of the conjunctiva with a few granulations in the *cul-de-sac*. He did not see a single case of Arlt's true trachoma in which are found, even with a healthy conjunctiva, masses of granulations occupying the *cul-de-sac* and having the appearance of frog's spawn. 3. Old cases with considerable pannus and atrophy of the conjunctiva, ending in xerosis and trichiasis. 4. Phthisical eyes, or those having extensive leucoma. All these cases may be observed in Europe, but, according to the physicians who practice in Egypt, the acute form must be distinguished from the chronic. The former are the most serious, and they are found at all times, but in winter only sporadically. They are more frequent when the Nile overflows its banks, in the month of August, at which time a period of very hot and humid weather begins. This overflow reaches its height in October, so that for about three months acute ophthalmia is epidemic. It has the appearance of an intense acute catarrh, and in the pus is found a bacillus described by Koch, Weeks, and Karbulis; gonococci may be observed also. Neglected cases terminate in corneal opacities.

A large number of cases come from acute gonococcal ophthalmia, and they can not be distinguished from cases that are

chronic from the first. If an eye is attacked with acute ophthalmia and infects the other eye, the latter is affected with the same form, but if the infecting eye has passed into the chronic stage, then the other eye suffers from chronic ophthalmia or trachoma. In the latter class all cases arise from blennorrhagia of the genitals. There are, however, other cases where trachoma has been chronic from the start. The causes of propagation are to be found in the promiscuous mixing and in the squalidness of the natives; moreover, the flies help to spread the disease. Dr. Fuchs attributes the ptosis, which is peculiar to the Egyptians and well known among painters, to the existence of trachoma, which attacks the unstriped levator of the eyelid and thus causes its drooping.

Prolonged Retention of a Foreign Body in the Air-passages.—In the *Lancet* for August 11th Mr. G. Michelmores relates the case of a boy, seven years old, who for a period of nine months had been suffering from pulmonary symptoms quite like those of pronounced pulmonary tuberculosis, which finally disappeared after he had coughed up a substance which was found to be a plum stone three quarters of an inch long, with pointed ends, which, the author infers, must have passed into the trachea without giving rise to primary symptoms. It was found, on making inquiries, that the only occasion on which he had eaten any plums had been about nine months before the termination of his pulmonary trouble, but both he and his friends were positive that he had had no sudden attack of choking. From the large quantity of pus that was expectorated the author judges that the stone may have become fixed in the trachea and have set up considerable ulceration.

The Use of Ferratin in Anæmia.—In the August number of the *Practitioner* Mr. John Harold gives his experience in the use of this preparation in a few selected typical cases of severe anæmia. The method of preparing ferratin, he remarks, is as yet not fully published, but he describes the drug as a fine powder of a rusty color, occurring in two forms, one uncombined and insoluble in water, and the other consisting of a sodium compound readily soluble in water. He gives notes of three cases and states that in none of them did the administration of ferratin produce any digestive trouble or constitutional disturbance.

The first patient was a girl, sixteen years old, who had been out of health for more than eight months, complaining of nausea and vomiting, palpitation, shortness of breath, irregular action of the bowels, deranged menstruation, and loss of color. She was ordered ferratin, increasing from eight to thirty grains three times a day, an aloetic pill at bedtime, and gentle outdoor exercise every day. She was soon cured. The blood was examined on the seventh day, and found to contain 1,910,000 red corpuscles in a cubic millimetre. This number increased until, at the end of fifty days, it was 4,390,000.

The second patient was a girl, nineteen years old, a dress-maker's assistant, who was obliged to work from 9 A. M. to 8 P. M. in a badly ventilated and overcrowded workshop. She was found to be extremely anæmic, and her chief complaints were of sleeplessness, shortness of breath on the slightest exertion, absence of menstruation, lack of appetite, palpitation, and a general feeling of lassitude. There were well-marked hæmic *bruits* in the neck and over the pit of the stomach, the tongue was very pale and flabby, and the bowels were constipated. The blood contained 2,120,000 red corpuscles to the cubic millimetre. The patient had taken some preparation of iron under a physician's advice, but there had been no apparent improvement in her condition. Ferratin was ordered as in the preceding case, and the bowels were regulated with a mild pill of nuxvomica and aloes. In about three weeks the patient showed

decided improvement in health; her appetite had reappeared, her strength had returned, menstruation was re-established, and she felt well enough to be anxious to resume her work. The number of red corpuscles in the blood had already begun to rise, and in a week more they numbered 4,000,200 to the cubic millimetre, and in another month 4,390,000.

The third patient was a tall, fair-complexioned, well-developed working-girl, nineteen years old, who two years before had been attacked with what was supposed to be an epileptic fit and had had recurrent attacks of unconsciousness. She had quickly become anæmic, her face had taken on a sallow look, she felt tired and languid after the least physical exertion, the menses had disappeared, she was constipated most of the time, she became breathless, with præcordial distress, on any exertion, she was restless at night, and her ankles were œdematous. She had been under medical treatment constantly for a year, but her symptoms had suddenly become worse. When she was admitted into Charing Cross Hospital she was decidedly pale and languid. Hæmic *bruits* were audible in the neck and over the præcordia; there was no perceptible enlargement of the heart; the urine was pale and did not contain albumin; there was no fever; the pulse was small and weak, and slightly increased in frequency; the fundus of the eye was normal; and the patient complained of throbbing in the vessels of the neck. Absolute rest in bed was enjoined, proper action of the bowels was maintained, a light, nutritious, and easily digested diet was ordered, and ferratin was prescribed in the same doses as before. The blood contained 1,640,000 red corpuscles to the cubic millimetre, and in two months this number had increased to 4,200,000.

Mr. Harold emphasizes the importance of rest in the treatment of chlorotic anæmia, and, after remarking how difficult it is to decide upon the relative value of medicinal preparations of iron in these cases, inasmuch as many of them end in spontaneous recovery without any medicinal treatment whatever when the patients have been placed under favorable hygienic surroundings, he goes on to say:

"As yet but little is known as to how the assimilation of iron is regulated by the organism, and we are also more or less in the dark as to the conditions and form of its absorption. Until our knowledge on these points has been advanced, no definite pronouncement can be made or verdict given as to which iron compound will be our ideal therapeutic preparation. According to Bunge, inorganic iron is solely of use in combating and neutralizing the hydrogen sulphide present in the alimentary canal, the hæmoglobin present in the red blood-corpuscles deriving its iron constituents from the organically combined iron in our food. In other words, the hydrogen sulphide is prevented from robbing the food of its organic iron. Intestinal antiseptics accordingly might prove of equal efficacy with our usually prescribed inorganic iron compounds, and it has been found that when prescribed they have indirectly increased the formation of the hæmoglobin. With iron, as with many other drugs, apparently trivial differences in the methods and form in which it is administered, and the dosage in individual cases, not unfrequently produce a great difference in the result obtained. The full recognition of this important fact should ever be before our minds; and it is because of want of proper attention to what may, at first sight, seem a small detail—the form of administration of our therapeutic measures—that we so often fail to derive the desired benefit. It can not but be acknowledged that inorganic iron as generally prescribed cures anæmia in the majority of cases, but some preparations undoubtedly yield better results than others. How the inorganic iron acts in cases of chloranæmia is doubtful, but most likely its *modus operandi* is that already explained. Remembering that the liver of many

animals naturally contains a highly ferrated compound, and that the liver performs a ferrogenic function in storing up iron from the blood of the portal vein—a fact so constantly observed in cases of pernicious anæmia—possibly excreting it when the needs of the economy require it, it is interesting to note the effects of the artificially prepared ferratin. This, as Professor Schmiedeberg has related, is the outcome of the endeavors made by him to administer iron in 'organic' combination, and it certainly appeared to exert a remarkable hæmatinic effect in the cases recorded."

Tussol.—This name has been given to a compound of amygdalic acid and antipyrine. The *Wiener klinische Wochenschrift* for August 9th states that Dr. Rehn, of Frankfort on the Main, has used the drug in a number of cases of whooping-cough in children, that he has found it useful in reducing the frequency of the paroxysms and mitigating their intensity, that its action is different from that of simple antipyrine, and that no untoward effects have been observed from its use. It is soluble in water, and as a corrigent raspberry syrup is better than milk. The minimum doses for children are as follows: Under one year of age, from three quarters of a grain to a grain and a half, two or three times a day; from one to two years, a grain and a half, three times a day; from two to four years, from three grains and three quarters to six grains, three or four times a day; for older children, seven grains and a half, four times a day or oftener.

Hyænanchin.—The *Deutsche Medizinal-Zeitung* for May 21st gives a summary of Dr. A. Engelhardt's study of this substance, included in the eighth volume of the *Arbeiten des pharmakologischen Instituts zu Dorpat*. Hyænanchin is a chemically indifferent crystalline bitter found in the seeds and the seed cases of *Hyænanche globosa*. Its physiological action resembles that of strychnine, but it acts more upon the brain and less upon the spinal cord, from which the author concludes that it may be used to advantage instead of strychnine in certain cerebral affections, such as amblyopia and deafness of central origin. In many features of its action it resembles picrotoxin. Since the genus *Hyænanche* belongs to the *Buxaceæ*, it is interesting to remark, he says, that the common box (*Buxus sempervirens*) also contains a poisonous material which, according to Ringer and Murrel, causes death by tetanus and spinal paralysis.

Acute Diphtheritic Dysentery.—The *Dublin Journal of Medical Science* for August, 1894, publishes an article on this subject by Dr. Percy Jones, of Dublin. In discussing the disease known as dysentery, he says, we are discussing no new disease; the Greek word is classical; it is alluded to in a passage in Herodotus, and Hippocrates refers to it as ulceration of the intestine; it was also used by St. Luke. Virchow calls the processes concerned in the production of this disease catarrhal and diphtheritic. The latter, known as red dysentery, is the one we are concerned with at present. The term diphtheritic has two meanings, which must be carefully distinguished from one another. According to Virchow, diphtheritic inflammation of a mucous membrane or of the skin has not necessarily anything to do with diphtheria; it is morbid change of a particular kind, probably dependent upon intense irritation of the part; and it does not imply the presence of a false membrane, but it does imply a putrid, destructive, and more or less necrotic process. The essential pathological change is an atrophy of the inner coating of the bowels, the glandular structures having disappeared, and the wall being so attenuated as to be transparent.

The following case has come under the author's observation,

and he thinks it is a striking illustration of the value of ipecacuanha given in large doses, and also that it corroborates the experience of the most competent observers—viz., that opium, given systematically, is injurious: A young man, eighteen years old, was taken sick on April 12, 1894. He had diarrhœa, and there was a general feeling of malaise and uneasiness about the abdomen. The following day this feeling of uneasiness turned to pain, and the diarrhœa stopped suddenly. He continued to feel badly until the 17th, when he took half an ounce of sulphate of magnesium in the morning. A few hours afterward he was in great pain and took another half ounce of the magnesia. His mother called at the surgery and described his symptoms, and Dr. Morison sent a mixture containing tincture of chloroform, morphine, and sodium bicarbonate. On the 18th his bowels were moved, and then Dr. Morison saw him. On the 19th he was still in great pain, and there was profuse diarrhœa. He was given a grain of opium and half a grain of extract of belladonna every four hours in the form of a pill. On the 21st nausea set in, and the motions became bloody and very offensive. On the 23d ten grains of bismuth subnitrate were given for the nausea every four hours, alternating with the opium. On the 26th the author saw him for the first time. The temperature was 98° F. and the pulse 120. He was very anæmic and emaciated; the stools were horribly offensive and consisted of large masses of muddy slime floating in blood and urine. There was tenderness on pressure over the cæcum and the ascending colon, and decided tenderness over the lower edge of the liver, which led the author to think that there might be hepatic abscess. Tympanites was not excessive. The same treatment was continued. On the 27th the temperature was 98° and the pulse 100. The patient had had a copious movement the previous evening; he had slept but little, and he was much weaker and very anæmic. On the 28th his temperature was 97° and his pulse 120. He was very feeble; his bowels had not been moved for thirty-five hours; he was quite conscious, although somewhat slow in recognizing persons. Late in the afternoon of the same day the author found him very feeble; the temperature was 96° and the pulse 140. Two ounces of brandy were ordered to be given every two hours. Then the author determined to try the effect of large doses of hippo as a last resort, and he sent a powder of thirty grains to be taken in two doses in as little fluid as possible. The first dose was not retained, but the second dose was kept down for about an hour. At 10 P. M. the temperature was 96° and the pulse 144; the patient was dribbling, and the finger tips were bluish and the hands quite cold. The author injected a syringe of ether, which at once had a most beneficial effect, and the amount of stimulants was increased, but Dr. Jones did not think the patient would live through the night. On the 29th, however, he rallied somewhat after passing two or three copious motions. In the morning he was given twenty-five grains of hippo dissolved in fifteen minims of dilute sulphuric acid and some tincture of orange. Perfect quiet was ordered, turpentine stupes were applied to the abdomen, and a little iced brandy was given for the thirst. In the evening Dr. Jones again saw him and was astonished at the decided improvement. The ipecacuanha had been retained for three hours, after which he had vomited freely and passed large bloody stools; he had then broken out into a profuse perspiration and slept for nearly four hours, waking up refreshed, with a normal temperature, and the pulse 84° and much fuller. The author gave him twenty grains of ipecacuanha as before, but this time he injected a third of a grain of morphine ten minutes before giving the ipecacuanha. On the 30th the patient was still improving, the morphine having given him a good night's rest and preventing any undue influence of the emetin. The diarrhœa still continued. On May

1st he was much better, and the motions contained much less blood. From that time until the 5th he was given fifteen grains of ipecacuanha every night, and no fecal matter was detected. He was allowed to eat toast and a soft-boiled egg and to drink weak tea. While he was under the author's observation, his diet had consisted of peptonized milk, peptonized beef tea, and bovinin and brandy. On the 15th of May Dr. Morison stated that he was up and able to be out; his motions were practically normal, but he was still extremely weak.

The origin of sporadic dysentery, says Dr. Jones, is usually attributed to the ingestion of irritating articles of diet, such as unripe fruit, decomposing meat, and bad water, but in this case the author could find no such cause, and he could not attribute it to cold. One important symptom was, in this case, absent from first to last—viz, tenesmus; but it is well known that this symptom is not present when only the cæcum and the upper part only of the large intestine are diseased, as was undoubtedly the case here. With regard to the treatment, Dr. Jones is firmly convinced of the efficacy of ipecacuanha, although much has been said against it. If it is used at all, it must be used in large doses—forty, or at the least thirty, grains—and must be repeated according to the effect produced on the patient. The best method of administering this nauseous remedy is by first giving a hypodermic injection of a third or a fourth of a grain of morphine. Thirty grains of powder are then made into four pills with the aid of from fifteen to twenty minims dilute sulphuric acid, and rolled in butter so that they can slip down easily, and the patient does not even taste them. How the ipecacuanha acts is still a mystery; the emetin is the active principle, but the author firmly believes that there is some other principle—antiseptic perhaps—as yet unknown, but which, with the light of increasing chemical science, may be discovered before long. Dr. Jones sums up the salient features of this case as follows: 1. The apparent absence of any known factor in the causation. 2. The downhill course while opium was systematically given. 3. The almost miraculous effect of the ipecacuanha.

The Tinea Problem in Paris.—The *Progrès médical* for July 28th publishes an article on this subject by M. Paul Raymond, in which M. Feulard's ideas, brought before the *Société de dermatologie*, are first summarized. It is known that tinea is increasing in Paris and that children attacked with it find it difficult to receive proper care in the hospitals. There are two hundred and ten beds reserved for them in three hospitals: the Enfants-Malades, the Trousseau, and the Saint-Louis. This number is insufficient, not only because of the large number of patients who present themselves each year, but because of the duration of the treatment. The large majority of them, therefore, are obliged to resort to the outdoor treatment, which is given in each of the three hospitals mentioned, but the results are not good, because the organization is often defective; moreover, the treatment should be practiced every day, and at the present time the children who receive this outdoor care are visited only once a week, although going regularly to the hospital. It was to remedy this state of things that M. Lailler proposed the establishment of a school to be attached to the Saint-Louis Hospital, where the patients could receive the necessary care which their condition demanded. This is not only a medical question, says the author, but a social one, the importance of which must strike every one. The Municipal Council has decided to establish new beds, and after much hesitation has determined to build a hospital for those affected with tinea on the grounds of the Saint-Louis. Hither, said M. Feulard, patients from other hospitals would be brought. There would be two hundred and eighty rooms, and thirty of them

would be reserved for those suffering from other diseases as well as from tinea. A school would be annexed to this hospital which would give shelter to three hundred and thirty-six children, and the school connected with the Saint-Louis would hold about two hundred.

M. Raymond says, in regard to this plan, that it is insufficient, the number of beds gained being comparatively small; and he does not believe in the hospitalization of those affected with tinea. Very few women, he says, ask admission to a hospital for their children; they only want them to receive the necessary care, and when this is done to take them home, as they do not wish to expose to the dangers of a hospital a child who has no other disease but tinea, when it can get intelligent and watchful care at home. M. Raymond proposes to establish in many parts of the city, in the squares of the different wards, for example, small dispensaries, containing about a hundred rooms each and capable of serving four wards. These dispensaries would certainly render great service. Children who are not able to receive outdoor treatment could always resort to the beds in the hospitals. Such is the condition of things at present. It is a subject for reflection, because, according to the decision which may be taken, a suitable service will be rendered to the Parisian population, or the result will be to combat only by insufficient measures a condition of things the gravity of which is felt by all those who have considered this question.

Sprains.—At a recent meeting of the Boston Society for Medical Improvement an interesting paper entitled *Sprains and Disabled Joints* was read by Dr. E. H. Bradford. It is published in the *Boston Medical and Surgical Journal* for August 16th. As regards the question as to what lesion is found in a sprain, Dr. Bradford says that practically the inquiry may be limited to the knee joint and the ankle, for sprains of the hip are chiefly contusions. If, he says, a dissected ankle is submitted to a violent twist, it will be found that the forced motion causes a strain upon the ligaments and the tendons, chiefly of the medio-tarsal joint, and that, as a rule, the bone itself is not bruised. Ordinarily in sprains the weight is thrown upon the forcibly inverted or forcibly everted foot; in some instances the foot may be forcibly flexed or extended. In the latter instance, although the astragalus is involved in the lesion, the strain falls upon the ligaments and tendons of the fore part of the foot. Displacement is not to be expected except in the severer injuries. The same conditions are true, but to a lesser degree, of the knee. The symptoms met with in sprains are as follows: The muscles being violently exerted to preserve the equilibrium, the patient suffers extreme pain and may be faint or have a faint sensation, and any attempt to use the limb may be either impossible or excessively painful. This is followed by swelling, sensitiveness, and discoloration. Attempts at walking are painful, and the joint remains weak for a long time. It is probable that, if the parts were to be dissected at this time, ruptured capillaries would be found, with effusion of blood and serum, also rupture of some of the ligamentous fibers and probably also in some instances rupture of the fibers of the capsule. In the case of the knee an increase of synovial fluid sometimes takes place, together with extravasation of blood. These occurrences seem to be exceptional in the case of the ankle.

The treatment should at first be directed toward checking the effusion and the extravasation. This may be done in several ways, such as by compression for a short time and by the use of measures calculated to improve the circulation in the parts about the joint—namely, the application of heat and cold, massage, and motion of the joint, which, however, should be so restricted as to prevent any excess of motion or stretching of

the strained ligaments. The length of time for which it is necessary to protect the joint from extreme motion will vary according to the amount of reparative power, the degree of violence, and the age; but there seems to be no justification for the popular notion that a sprain is worse than a break, a notion that appears to be based upon the over-cautious treatment of such injuries, which, by interfering with the proper circulation of the part and with guarded motion, increases the sensitiveness and produces a condition which, if unchecked, may give rise to such a disability of the joint as will be more tedious than that due to an ordinary fracture. This condition is what is seen occasionally in joints that are stiffened simply from disuse. The condition following a strain is somewhat analogous to that of the soft parts near a fracture—the circulation is interfered with, there is a certain amount of soreness on motion, and the muscles and ligaments are strained. In the treatment of sprains we should not be influenced by what Verneuil calls ankylophobia; a sprain is not a fracture; at most it is a tear of some of the fibers of certain ligaments, and this unites readily. Pain is the natural check to an excess of motion. Fixation by apparatus can be necessary only to stop the pain for a short time after a severe sprain. In the early stages motion short of causing pain is harmless; in the later stages motion and use should be allowed up to the point of pain; and in some instances, in highly sensitive persons, guarded and protracted motion, even beyond the point of pain, is indicated. Compression may be useful for a short time during the period of effusion, but after that it becomes injurious. As a means of improving the circulation, applications of heat and cold and friction are needed from the first, and the use of the limb, when it can be resorted to without causing pain, is a natural means of improving the circulation and nutrition.

Kneippism.—Suggestion has been practiced by all "curers," whether knowingly or not, and it is enveloped in mystic and religious practices or masked by various procedures of therapeutics. A "curer" who is at the present moment very much the fashion is the Bavarian priest Kneipp. His method is well known, but a letter published in the *Normandie médicale* for August 1st may be of some interest. The writer says: "I am surrounded with a swarming population of paralytics, ataxics, consumptives, people with lupus, people with cancer, and people covered with wounds and deformities. All of them are badly clothed, and their feet are bare; the women are without corsets, the men without undershirts; in fact, it is a veritable scene of miracles. All or nearly all of them have faith in the priest, and, consequently, the hope of recovery. This faith is evidently a great aid to the treatment, but it is incontestable that there is something in the priest's mode of treatment. It must be said that faith alone can not bring about the cure of those affected with lupus; but the priest cures them all, or nearly all. His treatment does not consist alone in applications of water; a number of medicinal herbs are employed, plenty of air, and a hygiene altogether different from that usually practiced. Very little clothing is worn; linen trousers, a coarse linen shirt, no undershirt, a jacket, a straw hat, and sandals, but no stockings, compose the usual costume. In this manner cutaneous respiration is facilitated as much as possible. Very simple food is recommended; milk, coarse bread made of flour from which the bran has not been separated, soup, very little meat or eggs, vegetables, and cooked fruits. As a drink, water, but very little beer or wine, and, above all, no alcohol or coffee. With regard to the water treatment, it is by applications generally very cold and excessively rapid, but sometimes hot. This repeated contact with water causes a violent reaction and a very active circulation of the blood; this, with the life in the

open air and an eminently strengthening diet, consumes the noxious constituents of the blood and reconstructs the organism. All this is logical and sound, and in order to appreciate and observe its full effects, it must be practiced on the spot. Some cures are extraordinarily rapid. Monseigneur Kneipp, as he is called since he has been made the Pope's chamberlain, is dissolute, and his consultations are so numerous—more than a hundred and fifty a day—that I do not believe in his special intervention in each particular case. Before the patient goes to him, however, another physician is consulted, who makes his diagnosis, and assists on the following day at the sitting, and under his direction M. Kneipp prescribes. There is something very interesting, combined with a certain infatuation, attaching to the religious and disinterested character of the priest; but there are also many patent results, and one must recognize that a considerable effort is made to strive against the modern manner of living, which is so contrary to the functions of the human body."

Necrotic Acne.—At a recent meeting of the *Société de dermatologie et de syphiligraphie*, held in Lyons, a report of which we find in the *Journal des praticiens* for August 11th, M. Dubreuilh insisted upon the identity of the acne pilaris of Bazin, the acne varioliformis of Hebra, and the acne necrotica of Boeck, which, he says, differ only in intensity. The favorite seats of necrotic acne are the face, the temples, the nose, the forehead, and, more rarely, the cheeks and the ears, under the form of points which appear in successive crops. After these eruptions scars are sometimes produced, consequent on suppuration or impetiginous eruptions. M. Dubreuilh considers the fundamental lesion to be a mummifying necrosis of the skin, very probably of microbic origin. As to treatment, he usually advises the following ointment: Benzoinated lard, thirty parts; potash soap, precipitated sulphur, each, five parts. Inunction with this mixture is to be practiced daily; and in a few days the eruption may be found to be resolved.

Fatal Peritonitis following Orchitis due to Mumps.—The *Gazette hebdomadaire de médecine et de chirurgie* for August 12th gives a summary of a history of a case, by M. Hornus, published in the *Archives de médecine et pharmacie militaires*, 1894, No. 7. During an epidemic of mumps a soldier, twenty-two years old, presented himself with a double orchitis. It was not due to gonorrhœa, and he had never had the least venereal infection. It had come on after a few colicky pains followed by an abundant movement of the bowels. Both testicles were affected in an equal degree. The temperature was 103.1° F. Topical treatment was prescribed for the orchitis, but as early as on the second day it was found that the patient had peritonitis, which carried him off in forty-eight hours. At the autopsy the testicles were found transformed into purulent collections with no longer a trace of seminiferous tubules. The spermatic cords were bathed with pus, which continued beyond the inguinal canal. The intestinal coils and the epiploon were covered with purulent and fibrinous deposits. There was nothing wrong with the other organs.

The Administration of Potassium Iodide.—A writer in the *Lyon médical* remarks that potassium iodide is better borne if it is given immediately before eating, but that it may be administered during or after a meal to avoid its coming in contact with the mucous membrane of the stomach and so being absorbed too rapidly. The following solution, said to be preferred by Professor Fournier, contains fifteen grains of the iodide to the tablespoonful: Syrup, three hundred and fifty parts; Bordeaux anisette, a hundred and fifty parts; potassium iodide, twenty-five parts.

Lectures and Addresses.

THE TEACHING OF ANATOMY.

By WILLIAM KEILLER, F. R. C. S. Ed.,

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LECTURE I.—THE PLACE OF ANATOMY IN THE MEDICAL CURRICULUM, AND DIFFICULTIES IN TEACHING IT.

It has long been the custom of physicians and surgeons to use the medical journal not only for the discussion of recognized methods of treatment, but also for giving publicity to their own special modes of procedure; indeed, it may be said that the egotism of each writer is one of the main elements that gives life and individuality to his writings and conduces to change and to progress in his practice. If, conformably with the customs of my clinical brethren, I shall in the following pages give special prominence to my own methods of teaching, I shall hope to escape the charge of mere egotism and be credited with some enthusiasm for my subject itself and desire for its advancement.

It seems well to take a preliminary glance at the position anatomy ought to hold in the medical curriculum. It is now fully recognized everywhere that all medicine and surgery must have a thorough knowledge of anatomy and physiology as their basis; but while no physician or surgeon will deny this, it might give a better stimulus to the medical student to acquire with diligence these difficult preliminary subjects, did the chairs of practice of medicine and of surgery lay more emphasis than is usually done on these points in diagnosis or in operative work. Too few of our physicians and surgeons keep up these subjects themselves, and when a student finds that his teacher of medicine or surgery either has forgotten his anatomy and entirely avoids anatomical points, or alludes to them with that cursory and careless notice that is worse than complete neglect, he very easily comes to consider the anatomist and physiologist very nice fellows, but cranks after all; and regrets that it was absurdly necessary to waste so much valuable time on subjects which may be forgotten with impunity. It is unnecessary to say that on a particular knowledge of anatomy and physiology rest all pathology, physical diagnosis, and intelligent surgery. Further, anatomical facts are not only difficult to acquire, but are still more difficult to retain in one's memory, and there is no anatomical knowledge of any value unless it be practical. A man may know the whole of Gray by heart and yet be no anatomist. The subject, therefore, deserves a place in the curriculum proportionate to its importance, and such as shall admit of its slow and steady acquisition and repetition by practical acquaintance with the dead body. In a three years' graded course at least two hours daily should be devoted to anatomy during the first and second years, and in the third year—that the student may be made to revise the facts he has already acquired—a section of the final examination should be devoted to medical and surgical

anatomy. No dissecting should be done at night. The very fact of the practical anatomy being relegated to gaslight and to the night, when the student is fatigued with the day's lectures, diminishes its importance in his eyes. Of this I shall have more to say by and by; at present I would only insist that in a three years' course two hours a day, during the hours when daylight is always available, should be devoted to anatomy, and that of these at least six hours a week should be devoted to dissecting. In a four years' course at least two hours daily during the first and second years should be devoted to dissecting, one hour daily to lecture demonstration such as I shall presently describe, and a special course should be given in the third year on applied anatomy. In a three years' course each student should dissect the whole body once; in a four years' course he should dissect the whole body twice, the second practical course taking the form of dissection to expose special structures and otherwise having more of a surgical tendency.

Having touched upon its place in the curriculum, let us consider the difficulties in the way of teaching this branch of medical education.

The first difficulty encountered by student and teacher is that in most cases at least the student comes totally unprepared for the study. To begin with, few students have any knowledge of Latin or Greek, and it is hard for any one who has had a classical training to realize how difficult it must be for men who do not even know the declension of Latin nouns to commit to memory anatomical names. Should we for this reason adopt the English equivalents? Such an expedient would give us some uncouth and unscholarly combinations. The short supinator might pass, but the "larger round" or "larger cylindrical muscle" would be a sorry substitute for the *teres major*, not to speak of "the larger anterior straight muscle of the head" for the *rectus capitis anticus major*. In spite of modern "practical" tendencies, it will never be possible to dispense with an elementary knowledge of Latin and Greek as an essential stepping-stone to each of the "learned professions," and it must be our aim not to reduce the standard of medical terminology to the deficient educational acquirements of our students, but rather to raise the educational standard of our matriculants by requiring a knowledge of Greek and Latin in our entrance examinations. With the rapid progress of education all over the United States this should soon be possible.

Then it is exceedingly difficult for the boy fresh from the usual school course, but much more so for the young man from country occupations, or the store or office, whose mind has been for some time out of training for study, to get into the mental attitude necessary for the observation of anatomical facts or their acquisition and retention. Intending students of medicine should always have a preliminary course in botany, natural history, or biology; and of these three, biology is perhaps the most important, including, as it does, anatomy (macroscopic and microscopic) and physiology, as seen both in animal and vegetable life.

Thus the views of physical life will be widened and the

eye trained to observe, the mind to collect, arrange, and picture to itself details of structure.

We can never expect to turn out men of a high educational standard till our matriculants are required to possess such a literary and scientific training as I have indicated.

I would have all our great schools create a scientific section, in which an elementary training in Latin and Greek (if not previously acquired), and, as preparatory for a medical education, an elementary course of physics, chemistry, and biology should form the stepping-stones from the general education of the school course to the special education of the medical curriculum.

Students from the country could then be required to take a year in a high school before entering college. One would thus limit the number of matriculants; but it is surely quality—not excess in quantity—we want in a profession that has to deal with the health and life of the community.

Again, it seems to me that the practice in many schools of keeping the systematic lectures and the practical course apart—the lectures being delivered by the professor, the practical course being entirely in the hands of the demonstrator, not to speak of the custom of dissecting at night—raises serious obstacles in the way of the proper teaching of anatomy. In every large, well-equipped medical school there are four chairs whose occupants ought to be required to give their whole time to the subjects and debarred entirely from practice; the emoluments of the chairs themselves being accordingly high—namely, chemistry, physiology, pathology, and anatomy. Each of these subjects ought to have thorough practical courses, which the students should attend in sections; and each professor should be free from the trammels of medical practice, that he might be able to conduct these classes personally and carry on original investigations in his special subject. In anatomy it is especially necessary that the lecture course and dissecting go hand in hand, and to that end it is essential that the dissecting be under the personal direction of the professor.

It is further necessary, especially in a three years' course, that the students be so divided into sections that each shall receive lectures on the part he is about to dissect. The student receiving a course of systematic lectures on, say, the muscles of the arm, at the same time that he is dissecting the leg, and, long before he can verify the textbook description by his own observations, makes it exceedingly difficult for him to keep up his work, even where his studies extend over four years and he is less pushed by a multiplicity of subjects in the minimum of time.

With regard to dissecting at night, it is possible to conceive how such a practice originated in schools where the first year's student takes his whole curriculum of lectures in the first year, attending (I do not say listening to, far less comprehending) lectures, from 8 A. M. to 6 P. M., on subjects ranging from chemistry to gynecology, and repeats the dose the following year. Here, of course, there could be no room for two hours' dissecting daily. But such schools are beneath contempt, except as means of converting igno-

rance into dollars, and substituting for it an ignorance more dangerous because possessed of some scientific terms, stock prescriptions, and the magic letters M. D. Many of such schools are now on a higher level; many, however, are only wearing the mask of a three years' graded course, but wearing a mask only, as they still permit (or require) their students to take out the whole course of lectures the first year and repeat them the second and third years. This can not be called a graded course. But why keep up the practice of dissecting at night? Where is the student's time for reading if he attends lectures all day and dissects from seven to nine every evening? Shall we plan our course of instruction so that our students shall of necessity be degraded into mere cramming machines, and we ourselves be no teachers, but professional crammers? Truly, we run the risk, even in a strictly graded three years' course, of manufacturing, not intelligent, thinking men of science, but living phonographs. Speak to them and they receive, turn on the examination handle and they talk more or less glibly; but too many of them are phonographs, not minds, rule-of-thumb physicians, not independent thinkers. Judging from what I have seen in the South, our students are fine fellows, hard workers, and thoroughly in earnest; let us not overcrowd them with lectures. The three years' course should consist only of essential subjects, so carefully arranged that there may be sufficient time for practical work—laboratory and clinical—during the day, and the evenings may be left clear for reading. Special subjects should be left to a post-graduate course. That the dissecting should be left to the sole supervision of the demonstrator is bad in every way. It is bad for the professor, for no man can go on giving clear, vivid, masterful lectures on anatomy long after he has ceased dissecting, no matter how well he may once have known the subject. A lecture on anatomy should give the student a vivid picture of the main features of the region described; it should not only present to his eye and understanding what is to be seen, but it should tell him how to see it for himself, and how to remember it when he has seen it; and who can do this three years after he has left the dissecting room? Further, the lecture must be the guide, the introduction to the dissecting table, and this can only be so when the same mind is the guiding spirit in each department. Nor can any demonstrator, unless he be also an examiner, maintain complete control over a large class of students; and if there is any class where complete control is necessary to good uniform work it is in the dissecting room. And one man can not supervise more than thirty dissectors. My demonstrator and I have the greatest difficulty in superintending efficiently sixty men dissecting at the same time. We have work enough for several junior demonstrators. Lectures, then, are nowhere without personal dissection; we can sooner dispense with the former than the latter, and let us have at least six hours weekly, during the best hours of the day, devoted to practical anatomy. I insist on six hours as the minimum, and these can only prove sufficient if made thoroughly available by some such system as I shall detail in another paper.

One obstacle in the way of thorough, painstaking dis-

section is imperfect preparation of the bodies. There is now no excuse for the failure of bodies to keep indefinitely. The subject, with very little trouble, can be kept as fresh two months after it has been put on the table as when it leaves the preparing room, and if the body be properly prepared at first the student may dissect every region with the greatest deliberation, and keep the part afterward in the dissecting room as long as he may wish to read from it. The dissecting room should be as aseptic as the hospital operating theater. Any surgeon might pass from dissecting in my rooms straight to a laparotomy with none but the usual precautions; and there can be no climate more trying than this of Galveston where heat and moisture combine to make an ideal nursery for all kinds of putrefactive organisms.

Another difficulty in the way of teaching anatomy is a feeling on the part of the majority of physicians and surgeons that a minute and accurate knowledge of anatomy is unnecessary for practical every-day work, that they themselves have got on very well with a very superficial knowledge of it; and they unconsciously impress the student with the idea that if once he gets through his examination he will be able to forget most of it with impunity. Every teacher of medicine or surgery who is himself a weak anatomist is bound to foster this idea in the minds of his students. Nothing stimulates my students more than the knowledge which is now widespread among them, that if in their clinical or operative surgery they make a grave anatomical error they are likely to hear of it smartly. It is the surgeon and physician among his teachers whom the student most reveres, whom he takes as his model; and he will measure the amount of anatomy which he deems necessary for professional life by the proficiency in it these teachers show, notwithstanding all that can be urged by the teacher of the subject itself.

I would therefore urge on my clinical colleagues the importance of guarding themselves against getting too rusty on matters anatomical.

Lastly, among the difficulties in teaching this subject is the difficulty of giving a systematic course of lectures with all their dry details that shall keep the students from going to sleep. During the first year students know too little to appreciate "practical points," and, after all, one has to travel through much stiff detail before one is refreshed by a few points of practical interest. Diagrams help considerably to fix the attention. Lecturing to a large class from the dissected specimen is worse than useless; one or two men see the dissection, the rest can not see, and cease making an effort to attend. I have largely got over this difficulty by means which I shall describe more fully later on. My lectures are regional, my lecture class being divided up into sections according to the region each is dissecting, and the lecture to-day is the guide to what the student is to dissect to-morrow. The lectures are accompanied by innumerable diagrams drawn on the blackboard before the students as I speak, and each student feels that if he misses a lecture or fails to take down a diagram he misses an important point in the next day's dissection. This often entails my lecturing at four separate hours to

four separate sections in one day, but it gives the best results of any system I have tried, and by its means I can make a class of a hundred and twenty, and I believe of any number, do very nearly uniform work, allowing, of course, for the differing capacity and studiousness of different students.

Original Communications.

A NEW OPERATION FOR HERNIA.*

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RELAPSE in oblique hernia takes place at the internal abdominal ring. The external abdominal ring and the abdominal parietes between the external and internal rings may be ever so well closed, yet if the internal abdominal ring has not been fortified and well secured, relapse will quite likely occur.

And then again, if the internal abdominal ring has been well fortified and the canal between the external and internal abdominal rings improperly closed, a relapse is almost sure to result. Therefore I am of the opinion that our efforts in hernia to prevent relapse should be directed particularly to the internal abdominal ring, for the purpose of as strongly fortifying and adding to the strength of this portion of the inguinal canal as is possible.

Secondly, the total obliteration of the inguinal canal, and thirdly, the formation of an artificial inguinal canal for the cord external to the muscles. These are the important points in the method which I have followed in the operative treatment of hernia.

It is to these points that I more particularly wish to call your attention this evening. It is a fact that the operations for hernia which have been industriously followed by our best surgeons in the past have resulted, in a very large percentage of the cases, in lamentable failures. These failures have been more noticeable in the hernias attended with large openings in the abdominal wall, and in my opinion they can always be traced to improperly fortifying the internal abdominal ring; failure to obliterate the inguinal canal and change the course of the cord; and, in large hernias with large openings in the abdominal wall, the failure to fortify these openings either by properly stitching together the tissues or *introducing between the tissues a foreign body which would become encysted*, thereby adding to the strength of the abdominal walls over the opening.

To carry out these ideas so far as possible and correct the errors that have led to failures, I have come to the conclusion that the following methods should be adopted:

A long incision should be made, extending at least two inches beyond the internal ring, through the muscles down

* Read before the Section in Surgery of the New York Academy of Medicine, April, 1894.

to the transversalis fascia. The sac should be opened and the intestine replaced. In the thin sac the suture should be passed with a needle around its neck like the puckering string of a pouch, and two thirds of the sac, or a little more, cut away, the stump inverted with forceps into the abdominal cavity, and the ligature tightened. This secures the stump within the abdominal cavity and prevents dimpling of the peritonæum. A single stitch or two across the neck of the sac is now necessary. The muscles should be carefully dissected up from the transversalis fascia a distance of an inch and a half either way from the internal ring. The internal ring is a hole in the transversalis fascia. This hole is enlarged by the pressure of the intestine. In order to sew up this internal ring the edges of the fascia should be denuded, and then for half an inch to an inch on either side of the ring two parallel longitudinal incisions should be made (or, in cases where the fascia is thick and adherent to the sac, it can be included with the ligature and inverted with the sac into the abdominal cavity). It will then be easy to bring the fasciæ together over the stump. The fascia should be stitched with interrupted fine wire sutures. Over this fascia should be placed loops of silver wire if the opening is large. The silver wire should be knotted in several places to prevent slipping. Four or five of these loops, two to three inches in length, will suffice. The cord should be raised from the canal and the loops passed underneath the cord from the internal to the external abdominal ring. Over these loops of silver wire or catgut the transversalis muscle is carefully stitched with interrupted sutures, the cord being brought through the muscle direct. The first layer of wire or catgut should run transverse to the inguinal canal. Over the transversalis muscle another layer of wire loops is passed, extending at right angles to the deeper layer between the transversalis fascia and the internal oblique. Each one of these loops of wire is stitched to the muscle to prevent it from slipping. Over this layer of wire the internal oblique is carefully stitched with interrupted sutures. The cord should be brought through the internal oblique muscle. The external oblique is stitched together, and if there is a thick layer of superficial fat of two or more inches, the wound is dressed open; if there is but little adipose tissue, the wound is closed. A small drainage tube or two strands of catgut should be inserted down into the sac when the sac has been inverted into the abdominal cavity; but when the sac has been cut away a few strands of catgut passing to the deeper layers of muscle will suffice for drainage.

Dressings should be performed at the end of the third day. Usually but little tumefaction is seen, and thus far I have seen no suppuration. In those cases of thick, large sacs which have been inverted into the abdominal cavity (the second method of dealing with the sac), and puckered together by means of the silk ligature (see Figs. 11, 12, 13, etc.), it is necessary to introduce a small drainage tube or strands of catgut to the bottom of the cavity, which drainage tube should be removed at the end of three days. In these cases, the sac should be thoroughly scarified on its peritoneal surface. This will stimulate adhesions to the abdominal peritonæum. In cases where a

thick, large sac is drawn up behind the peritonæum (see Figs. 19, 20), by means of a catgut ligature (the third method of dealing with the sac), a drainage tube or strands of catgut should be inserted in this sac for two or three days, and the scarification of the peritoneal surface before the sac is stitched up, and before its introduction into the abdominal cavity, should be very thorough and extensive. Adhesions will then rapidly form between the sac and the abdominal peritonæum. It is very easy to pass a ligature from within this large sac to the small opening which has been made in the abdominal cavity above. The incision in the sac before its introduction into the abdominal cavity should always be closed by means of catgut sutures. The mouth of the sac should be stitched together with one or two interrupted sutures, not sufficient to cut off the circulation of the sac. When the sac is treated in this manner, the wound is treated precisely as has already been described.

I have devised a curved cannula and needle to pass the catgut ligature through the abdominal walls from within the peritoneal cavity out, thus avoiding an incision and saving time. It is a long curved needle inside of a curved cannula carrying the catgut.

I will now briefly explain the illustrations which are appended to this paper.

Fig. 1 shows the position of an oblique inguinal hernia.

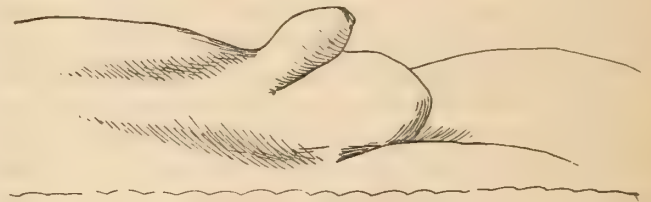


FIG. 1.

Fig. 2, an incision which has been made over this tumor—the sac being in full view. This is the usual incision made.

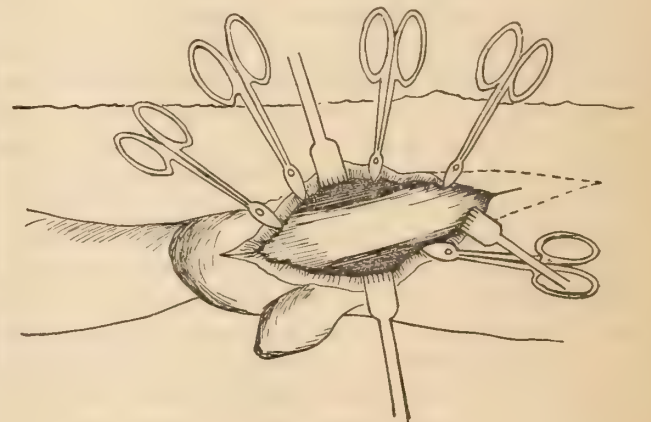


FIG. 2.

The dotted lines in Figs. 3, 4, and 5 represent the incision as I make it.

Fig. 3 shows the canal split up to the internal abdominal ring in the ordinary operation. This incision should be extended as far as the dotted lines, or nearly to the anterior superior spinous process.

Fig. 4 shows the sac raised from its bed to the internal abdominal ring. Now it can be seen that the incision, if

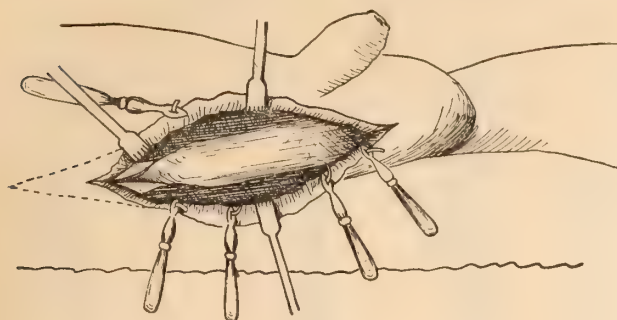


FIG. 3.

it is extended as far as the dotted lines, will allow the operator plenty of room to perform his work.

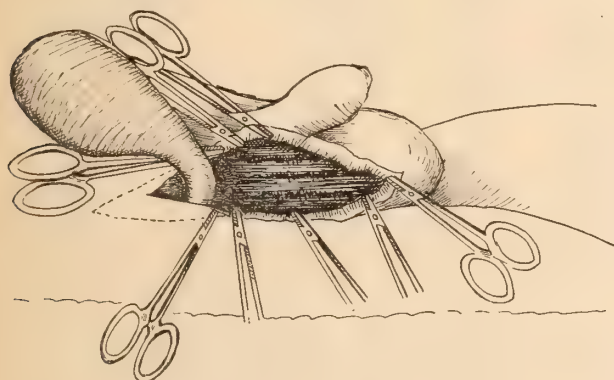


FIG. 4.

Fig. 5 represents the ordinary way of ligating the sac, which I believe to be wrong, because it leaves a dimpling of the peritonæum, and is not an effective way of

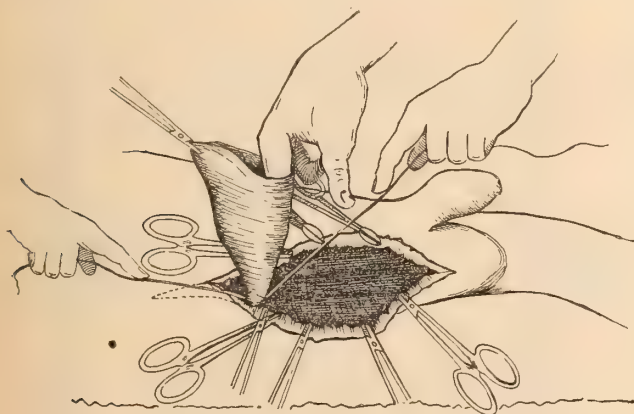


FIG. 5.

dealing with the sac. The following procedure should be adopted.

Fig. 6 represents two thirds of the sac cut away. The edges of it are seized with forceps and the finger is introduced in the sac close to the neck. The ligature, armed with needles, is passed through the sac around it, as a string is passed around the mouth of a purse to pucker it. Now with the forceps the sac is inverted into the abdominal cavity as represented in Fig. 7 (*a*, abdominal parietes; *b*, peritonæum). This brings the ends of the ligature

within the sac. These ligatures, armed with the needle, are transfixed through the sac as is shown in Fig. 8, *a*,



FIG. 6.

which brings them externally to the neck of the sac. Now these ligatures are tightened down upon the finger and the forceps and gradually the finger withdrawn as the ligatures are tightened; this prevents the possibility of ligating the intestine. After the ligature has been tied, a stitch is taken across the stump as is seen in Fig. 9, *d*. This is tied firmly, and the stump will then present the appearance as represented in Fig. 10, the peritonæum being straight and the stump projecting into the peritoneal cavity. The transversalis fascia and abdominal parietes are firmly stitched over the stump. This method of dealing with the sac is applicable to the thin and moderately thickened variety.

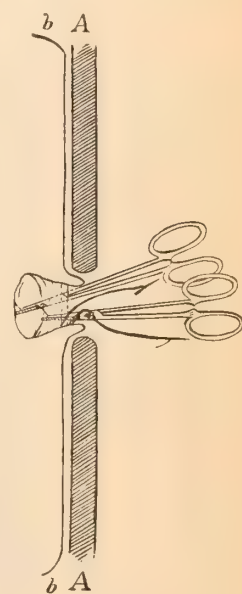


FIG. 7.

The second manner that I have found advantageous in dealing with the sac is represented in Fig. 11.

This sac has been opened and the intestine returned to the abdominal cavity, after which the opening is stitched up with catgut. Now a suture armed with needles is passed longitudinally around the sac, threading it in and out like a puckering string. When this ligature is drawn down tightly the sac presents the appearance as seen in Fig. 12. The sac is inverted into the peritoneal cavity as illustrated in Fig. 13. This brings the ligatures on the inside of the sac; they are thrust through the sac as in Fig. 14, *d d*, and tightened and tied across the mouth of the sac as shown in Figs. 15 and 16; another suture or two may be put in across the mouth of the sac, when it will present the appearance of Fig. 17. Finally the transversalis fascia is stitched together over the sac which has been inverted into the abdominal cavity, as is shown in Fig. 18, and two or three strands of catgut are inserted into the sac for drainage purposes. This manner of dealing with the sac is applicable to the moderately thick and large sacs, and the object is to place within the

abdominal cavity a considerable mass of tissue over the part of the weakened abdomen. The manner of sewing up

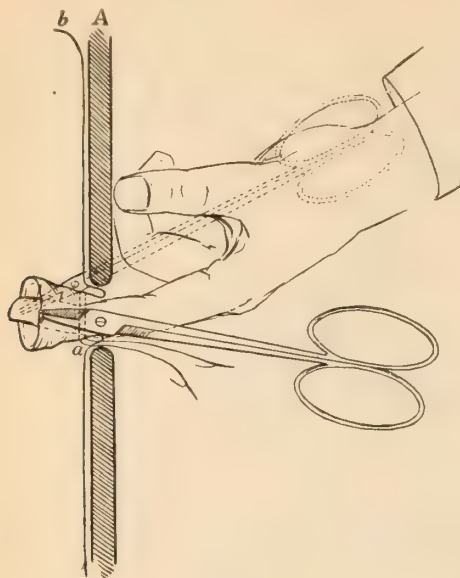


FIG. 8.

the abdominal ring, which is the hole in the transversalis fascia, will be described a little later.

The third way of dealing with the thick leathery sacs in old hernias is illustrated in Figs. 19 and 20. After the intestines have been returned to the abdominal cavity the

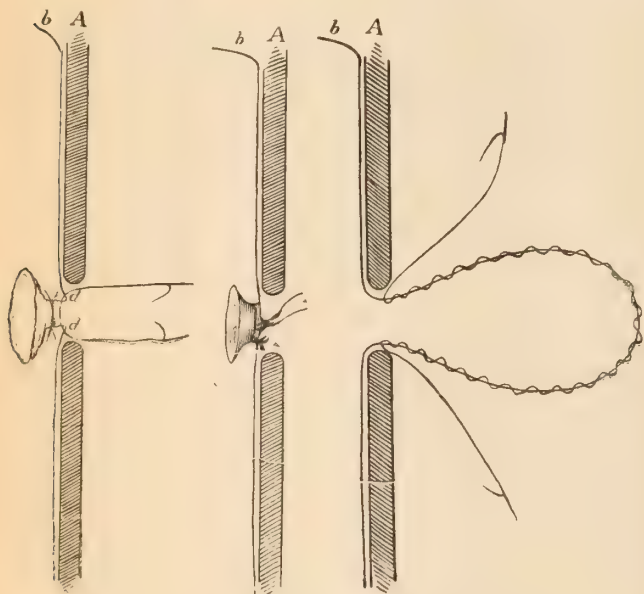


FIG. 9.

FIG. 10.

FIG. 11.

inside of the sac is thoroughly scarified and a catgut ligature is attached to the fundus of the sac (Fig. 19). The opening in the sac which was made to reduce the intestine is now carefully sutured with fine catgut, as in the preceding sac, and upon a probe the end of the ligature is carried upward into the abdominal cavity behind the abdominal parietes as far up as the sac is long. At this point, through a small incision, the ligature is drawn out through the opening and the sac inverted into the abdominal cavity and drawn well up behind the abdominal wall. The ligature is attached to

a piece of iodoform gauze (see Fig. 20) after being drawn through the small opening. The peritoneal opening is closed with a single stitch and each one of the muscles is carefully stitched together. The second incision in the ordinary individual need not exceed an inch and a half in length on the surface of the body, and at the peritonæum

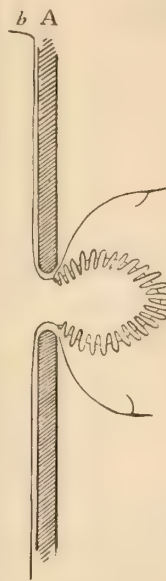


FIG. 12.

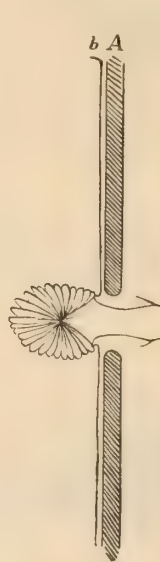


FIG. 13.

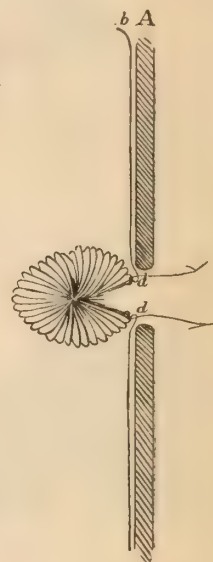


FIG. 14.

only the size of the probe. This small incision adds nothing to the hazard of the operation. Finally, a stitch is taken through the neck of the sac, as figured in Fig. 20, *b*. Catgut drainage is inserted into the sac. The sac being well scarified before its inversion into the peritoneal cavity,

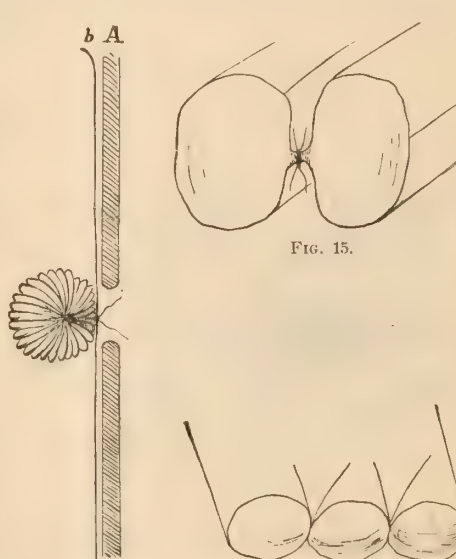


FIG. 15.

FIG. 16.



FIG. 17.



FIG. 18.

at once adheres to the peritonæum, the omentum, and the intestines, the inside of the sac being a raw surface. This forms a large mass of material directly over the weakened point of the abdominal cavity and is a very effective agent in preventing a relapse of hernia.

I have briefly given the method of dealing with these varieties of hernial sacs. In the first the sac is cut away

and the pedicle ligated in the abdominal cavity. In the second variety of *moderately thickened large sac* it is inverted

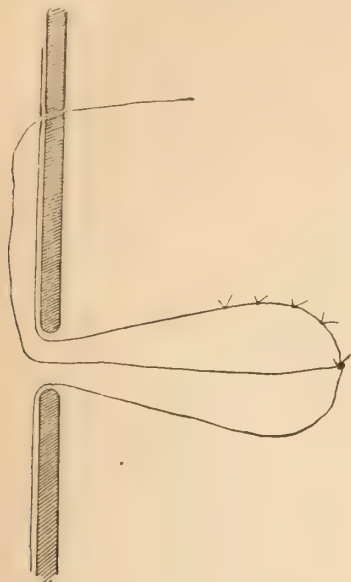


FIG. 19.

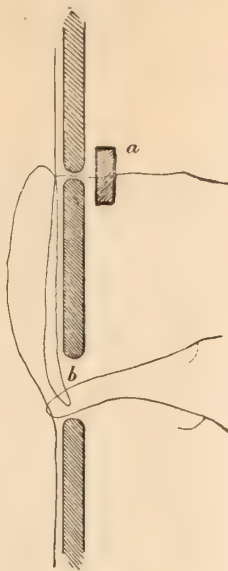


FIG. 20.

into the peritoneal cavity and puckered well down and over the internal abdominal ring. In the third method, *applicable only to the thick, leathery, large variety*, the sac is in-

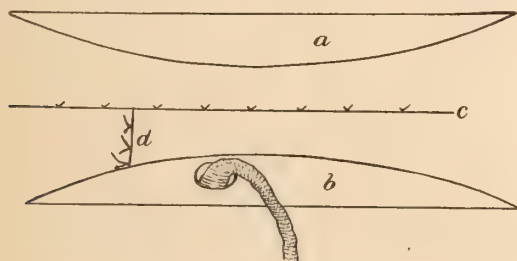


FIG. 21.

verted into the abdominal cavity and drawn well up behind the abdominal wall for the reasons already given.

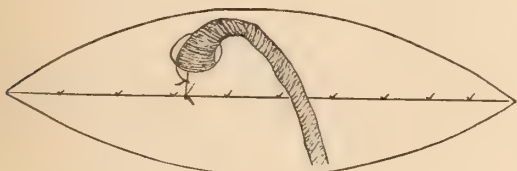


FIG. 22.

Now in regard to the closing of the abdominal parietes after the sac has been treated as I have suggested :

1. The internal abdominal ring must be closed over the stump or inverted with the sac into the abdominal cavity when adherent.

2. The inguinal canal must be obliterated.

3. A new canal must be made for the cord.

4. In large openings, silver-wire loops should be adjusted between the layers of muscles crossing the inguinal canal at right angles, which will be described later.

If these steps are taken and the work is effectively done, the relapses seen after other operations, I believe, will not occur.

1. To close the internal abdominal ring, dissect up the cord from the inguinal canal to the internal abdominal ring. Isolate the transversalis fascia from the peritonæum when not adherent to the sac and the transversalis muscle. Make two longitudinal incisions on either side of the internal abdominal ring, as seen in Fig. 21, *a, b*. The ring, which has been denuded, can easily be stitched together at *c*, the

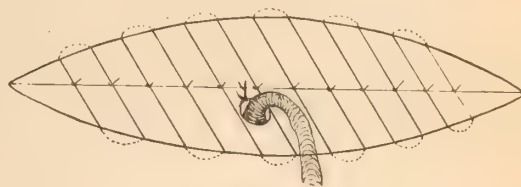


FIG. 23.

cord through an incision can be transferred to the inferior longitudinal incision. Over the transversalis fascia the transversalis muscle should now be stitched, the cord being brought out directly through the muscle above the line of incision, as seen in Fig. 22. The internal oblique muscle is now carefully stitched together and the cord brought directly through that muscle, as is seen in Fig. 23. Finally, the external oblique is stitched together, and if the opening is large in the abdominal wall the cord can be brought through the external oblique, and finally the skin and cellular tissue are stitched over the cord. This forms a new canal for the cord between the external oblique and the skin, and one muscle in this arrangement overlaps the opening in the other.

Now in the large hernias with a large opening in the abdominal cavity, which variety very frequently relapsed from any operation, and in the hernias which have relapsed from other operations, with very large openings in the abdominal walls, I place wire between the layers of muscles in the following manner :

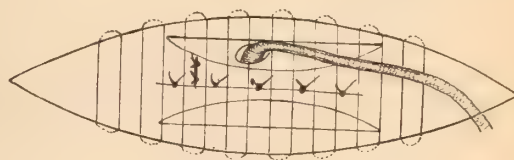


FIG. 24.

After the transversalis fascia has been stitched together over the stump, loops of silver wire are introduced at right angles to the inguinal canal, between the transversalis fascia and the transversalis muscle, as figured in Fig. 24. The transversalis muscle is now stitched over this layer of wire, the cord brought through the muscle, and another layer of silver-wire loops is placed between the transversalis muscle and the internal oblique, as illustrated in Fig. 23. This last layer of wire is placed almost at right angles with the first. The internal oblique is now stitched over these wires and the other tissues are stitched together, as has been already described. These wire loops are fastened in their place, to prevent their slipping during the healing process, with needle sutures. *They are all knotted or run in with loops, to prevent their slipping in the tissues and to more thoroughly*

facilitate their encysting. All of the stitching done after the ligation of the sac is with fine wire, with the exception of perhaps the superficial sutures and the needle sutures, to hold the wire loops in place. I have seen no irritation resulting from the use of the wire as I have suggested. When it is introduced into the wound, it comes from an alcohol lamp at a red heat. My conclusions are these:

1. That relapses occurring in hernia are due to the improper way of treating the sac.
2. The use of catgut and other absorbable materials in the closing of the abdominal parietes.
3. The improper treatment of the inguinal canal.
4. The dimpling produced in the peritonæum by the ligation of the sac externally.

To remedy these causes of relapsing in hernia:

1. The sac should always be either cut off and ligated within the peritoneal cavity;
2. Puckered together and inverted into the abdominal cavity; or
3. Inverted into the abdominal cavity and drawn up well behind the abdominal wall.
4. The inguinal canal entirely obliterated by being stitched up with fine silver wire.
5. Changing the inguinal canal by bringing the cord out through the different layers of muscles at different points, thus making one layer of muscle act as a guard against the opening in the layer underneath.

6. In large openings and in relapsed herniæ, the introduction of wire loops, as already described. *Strangulation of the sac when treated in this manner never occurs, because the circulation is not interfered with.* When the stump of the sac, however, is ligated in the peritoneal cavity, it unites with the adjacent tissue precisely as the stump does following an ovariotomy.

I have seen no unpleasant results in five cases treated as described either from the sac or wire.

I desire to present the following case for your examination:

City Hospital, B. I. Fourth Record.—M. J., aged twenty-seven years, single, sailor; admitted December 31, 1893; discharged March 5, 1894; visiting physician, Dr. Phelps; house physician, Dr. Greenway.

The patient says that ten years ago he fell from the mast of a ship and struck the deck with his buttocks. The next day after the fall he noticed a small tumor in the right inguinal region, about the size of a marble. This tumor gradually enlarged until now it is about the size of a cocoanut. The patient wished to have it operated on, as it caused him considerable discomfort and pain.

Examination shows the tumor to be an oblique inguinal hernia on the right side, with an opening in the abdominal walls that the hand could be passed through.

On January 8, 1894, he was operated on by Dr. Phelps for the radical cure of his hernia, a new method being employed—loops of silver wires were placed in the incision and allowed to remain and become encapsulated. The wound healed by first intention, and the hernia has shown no tendency to recur.

He went to sea March 9, 1894, perfectly cured. No inconvenience from the wire.

40 WEST THIRTY-FOURTH STREET.

RECENT EXPERIENCES IN THE TREATMENT OF DETACHED RETINA, WITH A DETAILED REPORT OF THIRTY-EIGHT CASES.

By CHARLES STEDMAN BULL, M. D.,
NEW YORK.

(Concluded from page 272.)

CASE XIV.—Miss W., aged twenty-seven years. First seen February 6, 1887. Always very myopic, but has only worn glasses (sph. — D. 4.50) for two years. Three weeks ago she received a severe blow on the left eye, which caused temporary loss of sight, then erythropsia, and subsequent loss of vision. An examination showed:

R. E. = $\frac{2}{3} \frac{5}{6}$; with sph. — D. 9 = $\frac{1}{3}$. Media clear. Not very marked degeneration of the chorioid.

L. E. = $\frac{2}{3} \frac{5}{6}$, unimproved. Lens clear. Vitreous generally hazy. Retina detached at extreme periphery in nasal and inferior quadrants. T.—1. No rupture of the retina visible.

Owing to the unusually healthy condition of the chorioid, in spite of the high degree of myopia, I decided to operate at once. A subconjunctival puncture of the sclera was made in the infero-nasal quadrant, a few drops of clear fluid exuded, and the detached retina collapsed. Rest in bed, atropine, and a bandage were then kept up persistently for five weeks. Pilocarpine was very badly borne by the patient and could not be employed. At the end of five weeks the vitreous became perfectly clear, the retina was in place, and the vision with sph. — D. 7 had risen to $\frac{1}{3}$. By total abstention from use of her eyes and careful management of her general health, which had suffered from confinement in bed, this favorable condition was maintained for nearly eight months. The detachment then suddenly returned without any warning and involved the entire lower half of the retina. The vitreous became rapidly cloudy and vision eventually sank to perception of light, and the lens became entirely opaque.

CASE XV.—Miss E., aged seventy-four years. First seen November 16, 1887. Always very myopic and has used her eyes constantly all her life. Three days ago she struck her nose and orbital margin of the left side a violent blow against a chair, and in a few minutes noticed that she could see nothing but light with the left eye.

R. E. = $\frac{2}{3} \frac{5}{6}$; with sph. — D. 6 $\subset$ cyl. — D. 1 axis 90° = $\frac{1}{3}$. Lens clear, vitreous clear. Extensive degeneration of the chorioid, especially around the disc.

L. E. = perception of light. Vitreous filled with blood in process of absorption, with floating clots. Peripheral opacities in the lens. Three weeks later the retina was found detached in the supero-temporal quadrant. As the blood became absorbed and the vitreous slowly cleared up, the chorioid was found to be extensively degenerated, and a laceration of the retina was discovered upward and inward, near the region of the ora serrata. T.—1.

Owing to the advanced age of the patient and the extreme degree of chorioidal degeneration, very little hope was felt of a favorable issue. The patient was placed in bed, atropine was instilled, a bandage was applied, and small doses of pilocarpine were injected. The latter soon produced unpleasant symptoms of cardiac failure and was discontinued. The patient was kept in bed five weeks, free action of the kidneys being induced by small doses of iodide and acetate of potassium largely diluted. The vitreous slowly cleared up and the detachment gradually sank downward until it involved the lower third of the retina. The vision improved to $\frac{2}{3} \frac{5}{6}$ with — D. 4 and remained at this point until the death of the patient seven months later, and there was no further extension of the detachment.

CASE XVI.—Mrs. C. K., aged sixty-four years. First seen June 16, 1888. Always hypermetropic, and has worn glasses for all purposes for many years. About ten years ago suddenly noticed a cloud before the left eye while reading, and this slowly increased in extent, so that for about three years she had not been able to see with the eye. Was told that she had a detachment of the retina. Then the vision slowly improved and for several years she has had very useful vision with the left eye. Two weeks ago the same condition suddenly returned, and she can now only distinguish the movements of the hand.

R. E. = $\frac{1}{2}^{\circ}$; with sph. + D. 3.50 = $\frac{1}{15}^{\circ}$. Media clear. Fundus normal.

L. E. = movements of the hand. Nuclear and peripheral opacities in the lens. Vitreous hazy. Retina detached below and on both sides of the disc. T. + 1.

The usual treatment of rest on her back in bed, with atropine and a bandage, was resorted to, together with daily injections of pilocarpine, and this was persisted in for three weeks without any improvement. The vitreous became generally hazy and there was no increase in the visual acuity. It was then decided to puncture the sclera, which was done with a narrow knife downward and outward subconjunctivally. Some turbid fluid escaped and the detachment partially collapsed. The local treatment was continued for two weeks longer, but the retinal sac again filled up, the haziness of the vitreous increased, and the lens grew more opaque. The vision slowly sank to faint perception of light, with absolutely no correct projection, and the cataract became complete. The other eye remained intact, and there was not a sign of degeneration of the choroid ever observed.

CASE XVII.—Mrs. C. S. E., aged thirty-seven years. First seen July 28, 1888. Always very myopic, especially in left eye. For three years the left eye has not been of much use, and she has had a constant dull ache in both eyes.

R. E. = $\frac{3}{2}^{\circ}$; with sph. — D. 10 = $\frac{1}{15}^{\circ}$. Hazy vitreous with floating opacities. Extensive chorioidal degeneration.

L. E. = movements of the hand. Extensive opacities of the vitreous. Detachment of the retina downward and outward. T. — 1.

The usual treatment was at once instituted. Rest in bed, atropine, a bandage, and pilocarpine by daily hypodermic injection were maintained for four weeks, with some improvement. The vitreous became much clearer. All the floating opacities were absorbed, but there remained a broad, dense membrane stretching entirely across the fundus. The vision rose to $\frac{5}{2}^{\circ}$ with sph. — D. 8, but there was no change in the detachment, and at the end of a month the patient was allowed to rise from the bed and move about. The state of the fundus and the vision remained unchanged for about two years, and then the vision rather rapidly failed, and within a month the retina became totally detached. The lens remained clear for two years longer and then became slowly opaque. The other eye is still as it was at the time of the first examination. This patient declined all operative treatment.

CASE XVIII.—Mrs. M., aged fifty-seven years. First seen October 8, 1888. Always very myopic, and for many years the left eye has been useless. Some years ago had a sudden loss of vision in the right eye from hæmorrhage into the vitreous and retina, from which she entirely recovered. About a month ago the vision in the right eye again began to fail, and there is a constant dull ache in this eye.

R. E. = $\frac{2}{2}^{\circ}$; with sph. — D. 18 = $\frac{1}{2}^{\circ}$. Lens clear. Fixed and floating membranes in vitreous. Small detachment of the retina downward and outward. T. — 1.

L. E. = fingers at six inches, and with sph. — D. 18 = $\frac{2}{2}^{\circ}$.

Lens clear. Very cloudy vitreous. Detachment of the retina outward, downward, and inward. T. — 1.

Owing to the extreme myopia and extensive chorioidal degeneration, no operation was deemed permissible. The patient was placed in bed, atropine was instilled and a bandage applied, and she was cupped on the right temple. The vitreous slowly cleared up, but the detachment of the retina gradually extended until it involved the entire lower half of the retina. At the end of four weeks the patient became very much prostrated from the confinement in bed and the effects of the pilocarpine, and she was allowed to rise and a course of tonic and restorative treatment was begun. She soon improved very much in general health, but the eye remained in about the same condition, and there was no change in the media or fundus for three years, since which time I have not seen the patient.

CASE XIX.—Mr. C. E., aged twenty-seven years. First seen April 23, 1889. In August, 1888, first noticed that the vision of the right eye was misty, previous to which both eyes had always been perfect, and this grew slowly worse until December, when it again began to improve, and eventually became entirely clear. Has used his eyes very constantly in microscopy. Two days ago the same thing again occurred.

R. E. = $\frac{1}{10}^{\circ}$, unimproved. Lens clear. Vitreous hazy. Retina detached in radiating folds in infero-temporal quadrant, reaching from disc to periphery.

L. E. = $\frac{1}{15}^{\circ}$. Myopic astigmatism — D. 0.50, axis 90°.

This patient was at once put to bed and the usual local and internal treatment begun and persisted in for five weeks with very satisfactory results. There was no myopia, and but very little chorioidal degeneration. By the end of the third week the vitreous had become entirely clear and the radiating folds of detachment had coalesced into one narrow, pouch-like cyst, directly downward in the equatorial region. At the end of the fifth week the retina was entirely in place and vision had risen to $\frac{2}{2}^{\circ}$. He was then permitted to rise and go about, atropine and dark glasses being constantly used. At the end of the second month he was permitted to use his eyes moderately. For two years the eye remained sound and useful, with vision $\frac{2}{2}^{\circ}$, since which time I have not seen him.

CASE XX.—Mr. T. B., aged twenty-eight years. First seen September 23, 1889. This is one of the cases reported to the society in 1891 as treated by Schöler's method. No improvement in vision, but reduction in the extent of the detachment.

CASE XXI.—Mrs. M., aged forty-seven years. First seen October 6, 1889. Failing vision in right eye for two months. Three weeks ago the vision of this eye became suddenly very much obscured.

R. E. = $\frac{2}{2}^{\circ}$ eccentrically, unimproved. Lens clear. Vitreous generally hazy and contains floating opacities. Detachment of entire upper half of retina. T. + 1.

L. E. = $\frac{1}{3}^{\circ}$ +; with sph. + D. 1 = $\frac{1}{15}^{\circ}$. Media clear and fundus normal. No degeneration of the choroid.

Treatment by rest in bed, atropine and cocaine and a bandage locally, and daily injections of pilocarpine, with plenty of nourishing diet, carried out through a period of four weeks, produced a very marked improvement in this case. The general haziness of the vitreous entirely disappeared, the floating opacities were partially absorbed, the detachment grew smaller, and sank down until it occupied the infero-temporal quadrant, and vision rose to $\frac{2}{2}^{\circ}$. The patient was then allowed to get up and move about the house, and at the end of a week to go out driving. The pilocarpine was discontinued and the bandage was left off, but the atropine and tonic treatment were continued. The detachment grew smaller, and the vision eventually rose to $\frac{2}{2}^{\circ}$, but never exceeded this, and the detachment never entirely

disappeared. The condition remained unchanged for more than a year, since which time I have not seen the patient.

CASE XXII.—Mr. M. W. P., aged fifty-eight years, journalist. First seen February 4, 1890. Has always had extremely good eyes until three days ago, when he noticed a sudden obscuration of the vision of the left eye while writing, and found that he could see nothing above the horizontal plane.

R. E. = $\frac{1}{2}$ —. Media clear, fundus normal.

L. E. = $\frac{1}{4}$ —, below the horizontal plane, unimproved. Media clear. Detachment of the retina in inferior quadrant, involving nearly two quadrants of the periphery. There was no apparent cause for the occurrence of the lesion, except long-continued overwork, especially at night. As the refraction was emmetropic, the patient had proper presbyopic glasses, and there was no chorioidal degeneration nor any history of traumatism. Rest in bed, with atropine and a bandage locally, persisted in for six weeks, eventually brought about a disappearance of the detachment and a restoration of the vision to the normal standard. How long this satisfactory condition lasted I am unable to say, as four months later the patient went to Europe, and I have never heard of him since. No pilocarpine or any other diaphoretic or diuretic was employed in the treatment of this case.

CASE XXIII.—Mr. C. H. B., aged fifty-nine years, builder. First seen March 30, 1890.

Had always had excellent vision in both eyes till March 14th, when he noticed a number of large black spots before the right eye. On March 26th the right eye became suddenly entirely blind. Since then the vision on the temporal side of the field has been partially restored, but he can see nothing to the left of the median line. The day before the black spots appeared he had been exposed for several hours to a furious storm of snow and wind, through which he had been obliged to walk for several miles, and was completely exhausted by it. R. E. $\frac{2}{3}$ eccentrically. Lens clear. Vitreous hazy. Detachment of the retina downward, outward, and inward over about two thirds of the fundus. L. E. $\frac{1}{2}$ +, unimproved. Lens clear. Vitreous generally hazy, with small floating opacities. General chorioidal degeneration.

The patient was put to bed, atropine was instilled in both eyes, and a bandage applied to the right eye. Owing to the existing chorioiditis, he was given hydrarg. chlor. corrosive, gr. $\frac{1}{6}$, three times a day, and pilocarpine was injected hypodermically once a day. The latter was discontinued on the sixth day, as it induced nausea and vomiting, but the other treatment was kept up persistently for five weeks. The chorioiditis gradually subsided, the vitreous of both eyes cleared up, and the floating opacities disappeared. The detachment of the retina in the right eye became much reduced in extent, and the vision of the right eye improved to $\frac{1}{4}$ and of the left eye to $\frac{1}{2}$ +. At the end of the fifth week the bandage was removed from the right eye, but he was kept in bed for another week. As time went on the sight of the left eye steadily improved and eventually reached nearly the normal standard, but the right eye remained in the same condition as long as the patient remained under observation—a period of seven months.

CASE XXIV.—Miss M. M., aged thirty-one years. First seen April 24, 1890. This is one of the cases reported to the society in 1891 as treated by Schöler's method, and published in its *Transactions* for that year. Condition of the patient made decidedly worse by the operation.

CASE XXV.—Mr. W. A., aged sixty years. First seen May 11, 1890. This is one of the cases reported to the society in 1891 as treated by Schöler's method, and published in its *Transactions* for that year. Condition of the patient made decidedly worse by the operation.

CASE XXVI.—Mr. J. W. M., aged sixty-three years. First

seen June 19, 1890. Always very myopic. Is a civil engineer. Four years ago he lost the sight of his right eye from detachment of the retina, and it has been useless ever since. Five days ago, while completing some surveying work in the field, he noticed a sudden obscuration of the sight of the left eye. He stopped his work at once, and as soon as possible came to see me. R. E. = perception of light; complete posterior synechia. Lens opaque. T + 1. L. E. = $\frac{8}{200}$; with sph. — D. 7 = $\frac{1}{2}$ —. Lens clear. Floating opacities and general haziness of the vitreous. Detachment of the retina in the supero-temporal quadrant.

The age of the patient and the condition of the right eye made the case a desperate one. He was at once put to bed, atropine instilled in both eyes, and a bandage applied to the left eye. Pilocarpine was contraindicated on account of advanced cardiac disease, and in its place small doses of potassium iodide, largely diluted, and mercuric bichloride were administered, accompanied by a general tonic treatment. Under this treatment the vitreous gradually cleared up and the opacities were largely absorbed, but there was no improvement in the detachment of the retina, and the resulting vision, after seven weeks' treatment, was not improved. The ophthalmoscope showed extensive disease of the chorioid with a myopia of D. 8. The vision of the left eye and the condition of the fundus have not materially changed since, during a period of four years.

CASE XXVII.—Mr. T. E. B., aged twenty-eight years. First seen September 23, 1890. Three years ago, while ill, he read for a long time lying on his back, for many days in succession, and since then he has suffered constantly from various asthenopic symptoms. In March, 1890, he received a blow on the right eye from a boxing glove, which temporarily produced nearly complete blindness. In April he was examined by an oculist, who discovered a detachment of the retina in the right eye. Since then there has been a slight improvement in the vision. R. E. = $\frac{1}{2}$ eccentrically. Lens clear. Vitreous generally hazy, with a fixed membranous opacity. Retina detached downward and outward. L. E. = $\frac{1}{2}$ +. Refraction normal.

As the cause of the detachment of the retina was a traumatism, with resulting chorioiditis in an eye previously entirely normal, I decided to operate. Under cocaine, a subconjunctival incision was made through the sclera in the infero-temporal quadrant, just back of the ciliary region, with a very narrow knife. The knife was plunged through the detached retina into the vitreous and a complete division of the vitreous membrane was made. After the incision was completed the conjunctival wound was closed by a single suture, atropine was instilled, and a bandage applied. On the next day the vitreous was very hazy, but the detachment had entirely disappeared. On the second day all reaction had vanished, and pilocarpine was injected hypodermically every day for fifteen days. The latter was then discontinued and small doses of hydrarg. chlor. corrosiv. were administered thrice daily. At the end of the sixth week the vitreous had become almost entirely clear, and at the extreme periphery downward there was still a small detachment less than half the size of that which existed previous to the operation. There was rather extensive degeneration of the chorioid, but the vision had risen to $\frac{1}{2}$ +. This eye still remains in the same condition after a lapse of three years and a half.

CASE XXVIII.—Mr. M. H., aged seventy-three years. First seen September 30, 1890. This is one of the cases reported to the society in 1891 as treated by Schöler's method, and published in its *Transactions* for that year. Decided temporary improvement, followed two months later by almost total loss of sight (perception of light) from a return and further extension of the detachment.

CASE XXIX.—Mr. B. W., aged thirty-six years. First seen December 28, 1890. This is one of the cases reported to the society in 1891 as treated by Schöler's method, and published in its *Transactions* for that year. Immediate impairment of the existing vision resulted, followed by a very slow improvement, which, however, never reached the degree that existed previous to the operation.

CASE XXX.—Miss A. E. M., aged fifty-three. First seen February 7, 1891. Has always been very myopic, but her eyes have never given her any trouble. In May, 1890, she first noticed an irregular scotoma in the field of the left eye, and since then the vision has slowly failed. R. E. = $\frac{2}{300}$; with sph. — D. 10 $\bigcirc$ cyl. — D. 1.50 axis $180^\circ = \frac{1}{30}$. Lens clear. Floating opacities in the vitreous. Extensive degeneration of the chorioid all over the fundus. L. E. = movements of the hand. Lens clear. Membranous opacities in the vitreous. Very extensive detachment of the retina downward, outward, and inward.

Owing to the very extensive chorioidal degeneration in both eyes, and the very large detachment of the retina in the left eye, any operation was deemed inadvisable. The patient was put to bed, atropine was instilled in both eyes, a bandage was applied to the left eye, and a strong tonic treatment was administered for a week. Then pilocarpine was administered hypodermically every day for sixteen days. Its physiological effect was very marked, and eventually caused extreme prostration, in spite of the tonic treatment, and its administration was stopped. At the end of five weeks there was no improvement in the vision or in the detachment of the retina, though the vitreous had become very much clearer in both eyes. Six months later opacities appeared in the lens, which increased so rapidly that within three months the lens had become entirely opaque. The other eye still remains in the same condition.

CASE XXXI.—Mr. W. O., aged thirty-five years. First seen March 23, 1891. When a boy he had a great deal of trouble with his eyes, and was for a long time forced to give up his education, because his vision was so defective. He was for a long time under constitutional treatment of some sort, and regained sufficient vision to prosecute his studies. Several months ago he began to be troubled with foggy vision in the left eye, and there was a constant dull ache in the eye whenever reading or writing. He consulted an oculist, who told him that there was a detachment of the retina in the left eye, and that he had had a chorio-retinitis in both eyes. When I examined him I found:

L. E. = $\frac{1}{300}$, unimproved. Refraction hypermetropic and astigmatic. Lens clear. Membranous opacity in the vitreous. Detachment of the retina downward and outward. Extensive old chorio-retinitis.

R. E. = $\frac{1}{100}$; with sph. + D. 1.50 $\bigcirc$ cyl. + D. 1.75 axis $165^\circ = \frac{1}{30}$. Media clear. Extensive chorio-retinitis (old).

The condition of the fundus of both eyes rendered an unfavorable prognosis almost a necessity. He was put to bed, and the usual treatment of atropine, a bandage, and pilocarpine hypodermically begun. The latter drug produced extreme nausea and prostration, and after the third dose was discontinued. Small doses of potassium iodide, largely diluted, were administered in its place, which produced very free diuresis and diarrhoea, and I was obliged to discontinue it. The patient was kept on his back in bed for six weeks. At the end of that time the vitreous was much clearer and the vision had improved to $\frac{1}{30}$ with a sphero-cylinder, but there was no demonstrable change in the detachment of the retina. Since the autumn of 1891 there has been a slow but steady failure of vision in this eye, but the detachment remains of about the same extent. Puncture of the sclera and detached retina, and division of the membranous opacity in the vitreous caused almost no reaction,

and produced not the slightest effect on the vision or the detachment.

CASE XXXII.—Mr. J. C. O., aged fifty years. First seen July 14, 1891. One year ago, after severe mental strain, he woke one morning with a large black spot before the left eye. He consulted an oculist, who told him he had a serious retinal hæmorrhage. The blood was gradually absorbed and vision slowly improved. Subsequently he had another larger hæmorrhage in the same eye, which obscured nearly the entire sight, and since then he has only been able to see with the temporal half of the field of vision. He is astigmatic and has worn correcting glasses.

R. E. = $\frac{1}{30}$ —; with sph. — D. 0.50 $\bigcirc$ cyl. — D. 1 axis $180^\circ = \frac{1}{30}$. Media clear. Fundus normal.

L. E. = fingers eccentrically on the temporal side. Lens clear. Large membrane, containing blood-vessels, in the vitreous, attached to the temporal margin of the disc behind and to the ora serrata in front. Extensive disorganization of the retina and chorioid, with a small detachment downward and outward.

The extensive disorganization of the retina and chorioid in the left eye, and especially the presence of blood-vessels in the membrane stretching across the vitreous, positively contraindicated any attempt to divide this membrane, as it would have caused extensive hæmorrhage into the vitreous. The generally enfeebled condition of the patient forbade the employment of pilocarpine.

The patient was put to bed, atropine was instilled, and a bandage applied to the left eye. Strong tonic treatment was administered, and after the first two weeks small doses of mercuric bichloride were prescribed. The eye gradually became quiet, the vitreous grew somewhat less hazy, and at the end of four weeks the patient was permitted to leave his bed and the bandage was removed from the left eye. The vitreous membrane remained unchanged, and the detachment showed no increase for nearly two months. Vision had improved to $\frac{5}{300}$ and all treatment was stopped. Fourteen weeks after I first saw him the eye became suddenly blind, and an examination showed that the retina had become totally detached.

CASE XXXIII.—Mrs. M. McB., aged forty-seven years. First seen November 16, 1891. In June last she received a violent blow on the head by falling from a landau in a runaway accident, and was unconscious for two days, and ever since there has been a marked loss of vision in the left eye. She has always been very myopic, but has never worn glasses with any regularity.

R. E. = $\frac{1}{100}$; with sph. — D. 8 $\bigcirc$ cyl. — D. 1 axis $90^\circ = \frac{1}{40}$ +. Media clear. Extensive degeneration of the chorioid.

L. E. = $\frac{2}{300}$, unimproved. Lens clear. Vitreous very hazy. Detachment of the retina downward.

The patient stated that the vision of the left eye varied from time to time, and that it was always better in the morning after a night's rest. She was at once put to bed, atropine instilled, and a bandage placed over the left eye. Pilocarpine was administered hypodermically once a day for two weeks, without producing the slightest effect either upon the vitreous or the detachment. It was then discontinued, and the sclera was punctured with a narrow knife in the infero-temporal quadrant. A few drops of turbid fluid exuded under the conjunctiva and the detachment partially collapsed. The atropine, bandage, and bichloride were continued, and in the course of three weeks more the vitreous became nearly entirely transparent. The vision rose to $\frac{1}{300}$ with sph. — D. 5, and remained at this point for a period of several months, but there was no further improvement, and the detachment remained as it was after the puncture of the sclera.

CASE XXXIV.—Mr. J. H. K., aged nineteen years. First seen January 2, 1892.

In November, 1890, during a game of football, the right eye was injured by a blow. The vision was entirely lost for a few hours, but he persisted in finishing the game. After a few hours of rest the sight began slowly to improve. Until about Christmas, 1890, he could see quite well. The eye remained quiet and useful till April, 1891, when the vision again suddenly failed and has never returned. Since then there have been occasional attacks of pain and congestion in the eye.

R. E. = fingers at three feet. Iris dilated and immovable. Lens clear. Fixed and floating opacities in the vitreous. Retina detached downward, outward, and inward. T. — 1.

L. E. = $\frac{1}{8}$. Emmetropia.

Treatment by confinement in bed, atropine, a bandage, and pilocarpine daily, hypodermically, for four weeks produced no improvement in the vision and no subsidence in the detachment, though the vitreous became very much clearer. The general haziness of the vitreous disappeared, and most of the floating opacities were absorbed. I then punctured the sclera beneath the conjunctiva in the infero-temporal quadrant with a narrow knife without the slightest result. No fluid exuded beneath the conjunctiva, and there was no collapse of the detached retina. The knife was again introduced and the loosened retina freely divided. This produced some collapse of the retina, but no improvement in the vision. There was little or no reaction following, but after two weeks' further confinement in bed with a bandage there was no perceptible change, and all treatment was abandoned. This patient was seen during the past winter, and the retina had become entirely detached and the lens entirely opaque. The eye at times was irritable, with well-marked ciliary injection, and in the latter part of May, 1894, there appeared an obstinate conjunctivitis of the left eye with rather intense photophobia, accompanied by constant pain in the right eye, which rendered enucleation of the blind eye advisable.

CASE XXXV.—Miss L. A., aged thirty-two years. First seen January 16, 1893.

Always very myopic. Five years before, following a long-continued strain of the eyes in literary work, a detachment of the retina occurred in the right eye. This was treated by another surgeon by confinement in bed, atropine, and a bandage, and hypodermic injections of pilocarpine for nearly five weeks, and resulted in an apparent cure, as the vision returned and the defect in the visual field was restored. All use of the eyes was interdicted for a year, and she spent two years in travel abroad. The right eye remained fairly well until a few weeks before I saw her, when it suddenly grew worse, and the loss of vision was accompanied by a dull ache.

R. E. = fingers at one foot eccentrically. Lens slightly cloudy at the periphery. Thin membranous opacity in the vitreous. Ciliary injection. Iritis with adhesions. Retina detached downward, outward, and inward. T. + 1.

L. E. = $\frac{1}{10}$; with sph. — D. 8 $\odot$ cyl. — D. 1.50, axis 180° = $\frac{1}{30}$ +. Floating opacities in vitreous.

The patient was put to bed, atropine was instilled four times a day, the eye was bathed with hot water four times a day, and in the intervals a bandage was applied. She was also given mercuric bichloride, a fiftieth of a grain thrice daily. The iritis proved very obstinate, and it was not until the end of the second week that the iritic adhesions began to yield. They were eventually all broken, except one broad synechia downward and inward. The vitreous then began to clear up and the vision to improve. The atropine, bandage, and bichloride were continued for nearly a month longer, by which time the vision had risen to $\frac{6}{200}$, beyond which it did not go. Owing to the extreme degree of chorioidal degeneration and the extent of the detach-

ment, any operative interference was deemed ill-advised. The eye remains in about the same condition at the present writing.

CASE XXXVI.—Miss T. O., aged forty-five years. First seen May 16, 1892.

Four days previously, on awakening in the morning she found that the right eye was totally blind. She had for many years strained her eyes by long hours of night work. An examination showed the following conditions:

R. E. = fingers eccentrically at six inches. Lens clear. Several small floating clots in the vitreous. Very extensive retinal hæmorrhages. One very large one below the disc, stretching all across the fundus. Several small ones on the disc and along the vessels. On May 20th several small fresh hæmorrhages were found, with patches of yellowish exudation below the disc. Small detachment of the retina at extreme periphery of the fundus downward. Signs of periarteritis and peripblebitis. Urine of a high specific gravity, but contains neither albumin, sugar, nor casts. Large amount of urates and uric-acid crystals. On May 27th there were several small fresh hæmorrhages noticed, and the large hæmorrhage showed signs of absorption by breaking up into small patches.

The left eye was normal, but presbyopic.

This patient was treated from the beginning in the usual way. She was placed in bed, atropine and cocaine were instilled, and a bandage was applied. She was given small doses of potassium iodide and sodium bicarbonate largely diluted, tonics, and a liberal diet. The repeated hæmorrhages occurred while under this treatment, and for a period of five weeks there was no improvement in the vision and no change in the fundus. She was then permitted to rise and move about. On July 14th she had a violent epistaxis, which was so continuous and profuse that it necessitated plugging of both nostrils. The next day she claimed that she could see much better, and I found that she could count fingers at three feet all over the field. There was, however, no change in the fundus, and the vision soon sank to the former standard. In October she had a similar attack of epistaxis, with another improvement of the vision which lasted for several days and then disappeared. On January 27, 1894, the retina became suddenly totally detached, and one week later occurred a cerebral apoplexy, from which she did not recover.

CASE XXXVII.—Mrs. W. H. M., aged fifty-nine years. First seen January 20, 1894. Very myopic, but eyes have been very strong. Just before Christmas had a bad attack of "*la grippe*," with marked blurring of the sight in the left eye. This soon passed off; but one week ago the vision of the left eye became again entirely obscured, and has improved but little since.

R. E. = $\frac{1}{200}$; with sph. — D. 4 $\odot$ cyl. — D. 1, axis 180° = $\frac{1}{8}$. Media clear. Usual signs of a myopic fundus.

L. E. = $\frac{3}{200}$, unimproved. Large central hæmorrhage in the vitreous. Peripheral opacities in the lens.

The patient was put to bed, atropine was instilled, and a bandage was applied constantly. There was a steady but slow improvement up to March 5th, when the vision in the left eye had risen to $\frac{1}{40}$ with sph. — D. 4, and she could read Jaeger No. 2 at eight inches. On March 10th, while sitting quietly in a chair, the vision of the left eye again became suddenly obscured, and an examination a few hours later showed a detachment of the retina upward and outward over about one third of the fundus. V. = $\frac{1}{80}$. The patient was immediately put to bed, the bandage re-applied, the bowels were freely opened, and pilocarpine administered hypodermically, which produced the usual physiological effect to an alarming degree. The nausea was so intense that I feared to repeat the dose. After three days had passed, I ventured to give the pilocarpine in

tablets by the mouth, and in this way the drug was borne very well and produced profuse diaphoresis. This treatment was continued for four weeks and was then stopped. The atropine was continued, but the bandage was discarded. The vitreous became entirely clear, and the detachment had shifted its position to downward and outward. The vision slowly improved, the detachment grew gradually smaller, until on May 18th it had entirely disappeared. Vision was then $\frac{1}{8}$ — with sph. — D. 4 and she could read Jaeger No. 4 fluently.

CASE XXXVIII.—Mr. E. V. H., aged fifty-three years, first seen February 6, 1894. Fourteen years ago he suddenly lost the vision of the right eye from extensive intra-ocular hæmorrhage, from which the recovery was very slow. Several times since then there has been a recurrence of the hæmorrhages, but always slight in degree. On three occasions there have been mild attacks of iritis in this eye, which subsided under appropriate treatment. The vision has been quite defective in this eye until ten days before I saw him, when it suddenly became very much worse, and he supposed another hæmorrhage had occurred. An examination showed as follows:

R. E. = fingers at one foot eccentrically. Discolored iris, with an oval pupil, long diameter vertical. Posterior synechiæ. Lens slightly cloudy at periphery. Vitreous slightly hazy. Detachment of the retina downward and outward.

L. E. = $\frac{1}{8}$, unimproved. Media clear. Fundus normal.

Six weeks' constant treatment by atropine, bandage, and minute doses of potassium iodide and mercuric bichloride caused a cure of the iritis, absorption of the posterior synechiæ, a clearing up of the cloudy vitreous, and some slight improvement in the vision, but the detachment of the retina remained unchanged. The repeated hæmorrhages which had occurred had probably caused such disorganization of the retina and chorioid that no useful improvement of the vision could ever be expected. This patient was seen as recently as May 16th, and the condition of the fundus and vision remained unchanged.

CHOLERA INFANTUM

(ENTÉRITE CHOLÉRIFORME).

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It is to-day a well-established fact that the term *cholera infantum*, as generally employed since the days of the earliest American writers, embraces a number of morbid entities, differing in their symptomatology, in their pathology, but having this in common, that they all occur at one and the same season of the year—viz., in the hot months. Among these various morbid entities is one that really deserves the name *cholera infantum* from the striking resemblance of its most characteristic feature to that of Asiatic cholera.

True *cholera infantum* is an exceedingly rare disease. Holt* finds that its frequency is not greater than two or three per cent. of all cases of summer diarrhœa. Starr† gives about the same figures. My own experience (I exclude all cases of severe diarrhœa that do not correspond to the type here described) does not show over a half per cent.

The disease occurs only in the hot months—July and August; in the more southern latitudes also in September. However, besides the heat of the season, an additional condition seems requisite—namely, great humidity of the atmosphere. In my first case, which was of but short duration, I, at the time, noted this great humidity of the atmosphere, the sultriness of the weather, that rendered respiration difficult, made one feel as if he were in a steam bath, and wilted the stiffest collar, saturating it with perspiration as if it had been dipped in water.* This was true of the atmospheric conditions with all the subsequent cases. This observation made by me in 1878 fully corroborates what Dr. Starr has said upon this point.†

It is most usually seen in infants between the ages of six and fifteen months—the first half of the period of dentition. It is very questionable whether *cholera infantum* has ever been seen in infants younger than four months.

SYMPTOMATOLOGY.—*Diarrhœa*.—An infant has been having loose, diarrhœal stools—not more than two to three, at most four to five a day—for some days. Usually these stools have a green color, the chopped-spinach stool of Trousseau. Suddenly, without any forewarning, the stools are greatly multiplied in number and markedly changed in character; the dejections are now simply a serous fluid, colorless, or of a light yellow or yellowish-green tinge, containing no fæcal matter, which soak away into diaper or bed-clothing and only leave a stain like that of light-colored urine. This watery discharge runs from the child in a heavy stream, *pleno rivo*, like when a hydrant faucet is turned wide open. It has a neutral or an alkaline reaction and a peculiar *musty* odor. Examined microscopically, we find epithelial cells in abundance and great numbers of bacteria. Sometimes the preceding diarrhœa, the chopped-spinach stools described above, is increased in severity at first; the stools are increased in frequency, become thin and watery in character, contain greenish and yellowish flocculi and fæcal matter. This exacerbation of an ordinary diarrhœa is but of short duration; the dejections become quickly choleraic.

Very rarely does the disease supervene in a child whose bowels are, up to the moment of attack, in apparently normal condition.

Pain.—The choleraic stools are absolutely painless. I have not, in the cases under my observation, noted the least indication of suffering on the part of the child. Other observers make no mention as to this; their silence, therefore, evidently confirms my own experience; for certainly had pain been present it would not have escaped their keen and watchful eyes.

Vomiting.—Coincident with or shortly preceding the choleraic change in the stools vomiting sets in. The child vomits everything that it has previously taken, and nothing, no matter what, is retained upon the stomach.

* This may appear trivial, but as I have no hygrometric figures I want to make plain by other indications what I mean by moisture of the atmosphere. There is so much humidity in the atmosphere and so little evaporation from the body that the perspiration accumulates and one's linen feels as if it had been dipped in water.

† *Loc. cit.*

* Keating. *Cyclopædia of Diseases of Children*, vol. iii.

† Louis Starr. *Diseases of the Digestive Organs in Children*, Philadelphia.

With the establishment of the choleraic diarrhoea the vomiting may stop, but the tendency thereto remains, and whatever is swallowed is at once rejected.

High Temperature.—The temperature is very much elevated. Starr* and Holt* say that it may run as high as 108° F. In the cases that came under my observation the thermometer, carefully applied in the axilla, indicated 106° and 106° + F., and this continued to within a very short time of the fatal issue. The high temperature is a feature of the disease, as much so as the serous discharges. In no case have I observed a temperature as low as 102° or 103° F. Subnormal temperature I have never seen; Holt† makes a similar statement. This subnormal temperature is occasionally observed in cases of summer complaint, a disease which, though altogether different, is nevertheless, by the majority of practitioners, designated as cholera infantum. Though the temperature of the body, as indicated by the thermometer, is so high, the extremities, more particularly the lower, are usually cool, even cold. The skin may be either clammy or dry.

Thirst.—By reason of the great drain through the bowels, of the vomiting, and of the high temperature, the mouth is dry and hot, and there is intense thirst. The child craves drink, and drinks with eagerness and avidity, only to reject upon the instant what it has taken.

Nervous Symptoms.—There is great restlessness at the outset; the children toss about in the cradle; very soon, however, they fall into a state of stupor. The child lies quietly in its crib; it does not appear to recognize its mother or other to it familiar person. When it is raised up in the cradle the eyeballs have a tendency to turn upward or downward beneath the upper or lower eyelid, as in children suffering from meningeal affections. Still later on we may have complete coma or convulsions.

The fontanelles are sunken in; the pulse, at times uncountable and very weak, becomes imperceptible; the lower extremities become very cold and the child passes away quietly, or a convulsion, mild or severe, may close the scene.

DURATION.—As can be readily understood from the symptoms here described, the malady is one of rather short duration. Starr and Holt both state that it can not last longer than two days without a change supervening for the better or worse. My own experience does not allow so long a period; my longest case lasted but twelve hours from the time the choleraic stools set in till the death of the child. The shortest case was of but three hours' duration.

ÆTIOLOGY.—It is an axiom in medicine that a study and, if possible, a recognition of the ætiological factor or factors producing a certain pathological process are of the greatest importance both as to the cure of said morbid process and the knowledge of the prophylactic measures necessary to prevent its development. Certainly it is of no less if not of greater importance in cholera infantum, a disease exceedingly fatal, and in which we have as yet no certain therapeutic guide.

(a) From the fact that a great number of bacteria are found in the dejections, as has already been stated, it has been taken for granted that a bacterium must be the special factor productive of all the phenomena presented, and Holt, in the *Cyclopædia of Diseases of Children*, has classed it under the head of Acute Mycotic Diarrhoea. To this it may be opposed that though numerous and careful investigators—Escherich, Baginski, Booker, Holt himself, and others—have studied this disease with the greatest attention, especially the bacteria of the discharges, they have never been able to discover any specific bacterium to which its production could be ascribed, not to say anything of verification by cultures and control experiments. Until this is done and repeatedly done we have no right to ascribe a bacterial origin to it and to classify it so. On this point I can not do better than repeat the words of that indefatigable student of the digestive diseases of children, Baginski, used by him in this very same connection: "Ich war mir wohl bewusst, dass eine definitive Entscheidung in letzterer Beziehung auf dem Wege der einfachen Feststellung der mikroskopisch zu ermitteln den Thatsachen nicht zu geben war, dieselbe ist nur zu ermöglichen an der Hand der nach Koch'scher Methode gemachten Reinzüchtung und der experimentellen Uebertragung."*

(b) *Acute Milk Infection.*—In the new text-book on diseases of children edited by Dr. Louis Starr we find cholera infantum classed under the head of *acute milk infections*. Now, this milk infection can be produced only in one of two ways; either

1. By the presence of pathogenic germs in the milk and their transplantation into the system of the child by ingestion; or

2. By toxic agents that have developed in the milk.

That it does not occur by the first method has been, I believe, demonstrated with sufficient clearness and certainty.

As regards the second method it can be asserted without fear of contradiction that no evidence at all has been as yet adduced to prove that such is the case. Dr. Vaughan, the discoverer of tyrotoxin and the author of the article, who, as he says, has seen quite a number of cases of cholera infantum, does not bring to the support of his theory the least proof. He does not say that he has, in any one of his cases of cholera infantum, found this or that toxic agent in the milk of which the child had partaken; certainly if any one could detect its presence, if it were present, it is Dr. Vaughan. It is true that he says there that in one instance in which milk containing tyrotoxin was given to an infant it produced the symptoms of poisoning, vomiting, and diarrhoea; but then that was not a case of cholera infantum, and Vaughan himself does not say that it was.

It would certainly be most illogical to conclude therefrom that all cases of diarrhoea and vomiting occurring in children in the summer must be due to this same toxic agent.

* *Loc. cit.*

Loc. cit.

* *Die Verdauungskrankh. der Kinder.* Von Dr. A. Baginski, Tübingen, 1884, p. 94. Italics ours.

The position here taken is still further corroborated by the fact that when milk intoxication does occur, and it is of very rare occurrence, it presents characteristics very much different from those of cholera infantum:

MILK INTOXICATION.

Comes on suddenly without the child having apparently been previously ill.

The stools are fæcal and have a strong fæcal odor.

The stools, at least the earlier ones, contain more or less flocculi of casein, natural color or stained by biliary matter, and agglomerations of globules of milk fat.

The stool, more or less abundant in quantity, is discharged in two or more periods—i. e., evacuation is an interrupted one. The stream in which it flows is not large.

The stool soon becomes less abundant; sometimes after five or six hours or a day it will consist of nothing but a little water with a fæcal odor, containing a few patches or shreds of the exfoliated epithelial lining of the mucous membrane (as we see it in severe catarrhs).

There is very much pain—intense pain of a griping kind. The pain is severest at the time of an evacuation.

The temperature, which at the outset may have risen to 102° or 103° F., never higher, falls very quickly and becomes subnormal. Collapse sets in soon, hastened by the great pain.

It is not bound to any season; it may occur in winter as well as in summer. The worst case of this kind that I saw occurred in the winter months.

As additional proof contra, the results of post-mortem examinations can be invoked. Milk intoxication invariably produces severe gastro-intestinal catarrh. In the post-mortem examinations of children dead from cholera in-

CHOLERA INFANTUM.

Supervenes generally in cases in which a moderate diarrhœa has existed for three or four days, a week, or more.

The stools are serous, contain no fæcal matter, and have no odor.

The stool, abundant in quantity, flows in a full, large stream, *pleno rivo*, as when a hydrant faucet is turned on full force. The evacuation is an uninterrupted one.

The stool retains its original character to the end.

There is absolutely no pain, either before or during or after the discharge.

The temperature rises to an unusual height—106° or 108° F.—and remains thus up to within a short time of the fatal issue, to the very end, or to the crisis.

Occurs only in the summer; only in the hot months.

fantum the intestines are frequently found almost normal in character.*

Summing up, we find that this view as to the ætiology of the disease has (a) no basis of fact to rest upon, and (b) does not comport with the natural history of the disease. It must therefore be rejected.

(c) *Sunstroke*.—This theory can be at once and absolutely rejected without further argument. Sunstroke is the result of direct and continued exposure to the rays of the sun. There is no history of such exposure in cholera infantum. I am positive that in the cases coming under my own observation the children were not in any way so exposed. The observations of physicians in general are confirmatory of this. Furthermore, and most important, examinations of the brain after death have disclosed no lesions, certainly none of the pathological conditions always seen in cases of sunstroke.†

In any investigation as to the ætiology of cholera infantum the following circumstances attending its appearance must be kept in mind:

1. The disease occurs in the period of dentition invariably.‡
2. It generally makes its appearance in children who are already suffering from diarrhœa (dyspeptic or catarrhal).
3. It occurs only in the hot months, and
4. Only at a time when the atmosphere contains a great deal of moisture—when it is very sultry.

From the invariability with which these circumstances attend the appearance of the disease, indeed appear as part of the natural history thereof—and upon these points there is universal agreement—they can not be regarded otherwise than as causative factors. As to the mode of action of each of these individual factors, it may be said, taking into consideration only what is well established:

1. That dentition may cause various disturbances in the general economy of the child. These are chiefly of the digestive tract; next in order of frequency are those of the cerebral centers. Even those who do not coincide fully with this must at least admit that dentition markedly predisposes the infant to such disturbances of its economy, and that slight, even trivial, causes, that at other times would be altogether without effect, will at this period produce quite marked pathological conditions.

2. That great summer heat, rendered still greater by the unfavorable conditions under which a very great number of children live, aggravates existing troubles or produces them *de novo*. This point has been amply elucidated in my papers *Heat Stroke (thermic fever) in Infants** and *Summer Complaint, etc.*‖

3. That “the degree of moisture contained in a heated atmosphere makes a great difference in the degree of temperature elevation which may be sustained by the human

* *Diseases of Children*. By J. Lewis Smith, M. D., 1890.

† *Ibid.* Starr, *loc. cit.*

‡ Barthez and Rilliet (edit. Barth. and Sanné), vol. ii, 1887.

* *Medical News*, August 8, 1891. *Cincinnati Medical News*, September, 1891 (complete).

‖ *New York Medical Journal*, September 10 and 17, 1892.

body."* The reason therefore is that in a moist atmosphere evaporation from the body is greatly diminished; heat radiation therefrom is thus proportionately inhibited and necessarily a greater amount of heat stored up therein.† If the application of the great heat be continued, without the abundant secretion of sweat and its continuous evaporation so necessary to the maintenance of the temperature equilibrium, and there be consequently a continuous carrying in and storing up of heat in the internal organs, an irritation of the vaso-dilators of the internal vascular areas and an inhibition of the influence of the vaso-constrictors results. In consequence thereof the greater part of the circulating fluid is withdrawn from the cutaneous circulation, particularly that of the extremities, and pours into the internal vascular areas, especially into the vast splanchnic reservoirs. We thus have the cool extremities and the rather pallid countenance.‡ By the withdrawal of so large a volume of blood from the distal circulation and its accumulation in the inner portion of the body the radiation of heat therefrom is still further inhibited, and a great amount of heat derived from two sources—accumulation of its own product* and acquirement from the external atmosphere—is stored up therein and the temperature elevated to an unusual height.¶ As a result of this disturbance of the equilibrium of the circulation arterial pressure is lowered, the heart's action is greatly reduced in force, and venous turgescence and capillary stasis in the parts indicated result.⁷ Moreover, under the continued influence of the ætiological factors, the temporary inhibition of the vaso-constrictors in the area named becomes a paralysis. The tonus of the vessels is completely lost, and this, combined with the much greater pressure brought to bear upon their walls by the great amount of accumulated blood, leads to the transudation of serum.⁸

4. It is an old maxim in medicine, *ubi irritatio, ibi fluxus*. The intestines being already the seat of an irritation, as indicated by the preceding dyspeptic or catarrhal diarrhœa, it is but in accordance with what we daily see in pathology that the tendency of the vascular turgescence and repletion of vessels should be toward this organ. Hence, when, for the reasons described, serous transudation occurs, it is into the intestinal canal that the fluid is poured and manifests itself as a serous diarrhœa.

From what has been set forth, the natural history of the disease, the invariability of the conditions under which it appears, and the symptomatology by which it manifests itself are readily understood.

It can therefore be justly concluded that the ætiological

factors of the disease are: (a) *The great heat of the season* and (b) *the great humidity of the atmosphere*.

MORBID ANATOMY.—The post-mortem appearances found in the intestinal tract are not uniform; sometimes these organs present evidences of more or less inflammation, at other times no marked changes are noted. Leaving out of consideration cases of catarrhal diarrhœa which by reason of a temporary exacerbation have been mistaken for cases of cholera infantum, it seems to me, from my own rather limited investigations, that this difference in post-mortem appearances is explained by the severity and duration of the diarrhœa that preceded the choleraic attack. If this diarrhœa had been severe and of longer duration, the evidences of an inflammation of a more or less acute character are found; if it had been mild and of short duration, the post-mortem appearances do not deviate much from the normal.

This, however, is, I believe, found in all cases of cholera infantum of the type described here—namely, the blood-vessels, especially the veins in the submucous coat, are abnormally distended with blood. The vessels of the mesentery also show great turgescence; they present their characteristic appearance; the arborescence is very distinct and prominent.

More or less softening of the mucous membrane, which I hold to be chiefly a mechanical effect, the result of maceration in the large quantities of serum passing through its meshes, is found in all instances. Barthez and Rilliet* have occasionally found gastromalacia in cases of *entérite cholériforme*.

In the brain nothing of note has been found. It is a question, however, whether a careful microscopic examination will not reveal to us some marked changes. The well-known experiments of Schiff that section of the cerebral peduncles and of the optic layers produces hyperæmia of the stomach and intestines (*hyperémie névro-paralytique*) with marked distention of the veins—that puncture or incision into the medulla oblongata about the level of the superior roots of the spinal nerve or about the point of the calamus scriptorius is followed by appearances that are very much like gastromalacia—justify such a supposition.† Upon the whole, it can be maintained that the pathological process set up by the ætiological factors is a paralysis of the vaso-motor nerves (splanchnic and celiac ganglions) supplying the stomach and intestines. Whether this is by direct action upon the ganglion or indirectly through the brain remains for further demonstration.

DIAGNOSIS.—The diagnosis should present no difficulties; the serous stools running *pleno rivo* from the child, the absence of pain, the unusually high temperature, are sufficiently characteristic and unmistakable features. It must also be remembered, and it is of the greatest importance as regards prognosis and therapy, that an exacerbation of a dyspeptic or mild catarrhal diarrhœa which readily occurs in summer is not cholera infantum. It is not necessary to expatiate here as to how this exacerbation of what is

* Barthez and Rilliet, *loc. cit.*

† Schiff. *Leçons sur la physiologie de la digestion*, vol. ii, lec. xxxv, 1867.

* *Principles of Human Physiology*, by William B. Carpenter, M. D., etc.

† Landois and Sterling. *Human Physiology*. Veröffentlichungen über Krankengeschichten u. Leichenbefunde aus den Garnisonslazarets. x. Hitzschlag. Hiller, Berlin, 1891. *Text-book of Human Physiology*, by M. Foster, M. A., M. D., etc.

‡ Hiller, *loc. cit.* See Symptomatology.

* Traube. *Gesammelte Abhandlungen*, vol. ii.

¶ Landois and Sterling, *loc. cit.* *Text-book of Human Physiology*, by M. Foster, etc.

⁷ Foster, *loc. cit.* Hiller, *loc. cit.*, p. 44.

⁸ Landois and Sterling, *loc. cit.*

most frequently only a condition of loose bowels is called forth. It is sufficient to say, referring here to my former paper on Summer Complaint,* that the digestive function of the stomach in hand-fed children is more or less enfeebled; that it is still further impaired in vigor by the great heat of the summer; that, therefore, a very trifling irregularity in diet, a few fibers of meat, a piece of sausage, a minute piece of fish (and frequently these are not even fresh) will give rise to a most dangerous gastro-intestinal irritation. From this aggravation of a previously mild diarrhœa and from milk intoxication cholera infantum is readily differentiated by the difference in symptomatology already set forth above.†

TREATMENT.—The methods of treatment hitherto applied, the digestive ferments, the intestinal antiseptics, etc., have not proved at all effective. The *modus curandi* that I hold to be the best, the most energetic, as the emergency requires, and that meets symptomatic and pathological indications, is the one employed by the older physicians in the treatment of Asiatic cholera:

1. Calomel, in minute doses, well triturated with sugar of milk, to arrest the vomiting.

R Calomel..... gr. jss.:

Sacch. lact..... gr. xx.

Mix, triturate thoroughly, rub for ten minutes, and divide into twenty equal powders.

Sig.: Half a powder, dry upon the tongue, every fifteen minutes.

2. Blisters, for their exciting action upon the cutaneous nerve-filaments and through them upon the abdominal vaso-motor system. Though I do not at all favor blisters in young infants, this is one of the very few instances in which I advocate them, and I believe that a man has not done his whole duty who has neglected the use of this powerful remedial agent in a case of cholera infantum.

3. For the high temperature, an ice bag placed under the nucha, or a Chapman bag to spine and nucha; much better still, the wet pack, as described by me in my paper on heat stroke; if this is impossible for whatever reason, a heavy towel wrung out of ice water is spread lengthwise upon a rubber sheet (or piece of oilcloth) and the child laid upon it naked, or clothed in a thin chemise only. The towel or pack is changed as soon as it feels warm to the touch.

4. For the great thirst a piece of ice can be placed in a clean thin handkerchief and the child allowed to suck this like a teat; or it can be just held in the child's mouth or upon its lips. The wet pack or towel will greatly aid in allaying the thirst. No fluid should be given until the temperature is lowered and the stool changed in character.

If despite all these measures the little patient continues to fail, we should resort to hypodermoclysis or to hypodermic injections of a physiological salt solution. Henoeh‡ relates that in some instances where the little patients seemed upon the point of dissolution he succeeded

in saving them by this measure. At first a stronger solution, 2 to 100, was used; later the physiological solution, 6 to 1,000. Six to eight Pravaz-syringefuls were injected in rapid succession. Occasionally in the course of a day thirty to fifty grammes were injected.

After we have succeeded in allaying the thirst—and, as already indicated, this will be synchronous with a fall in temperature and a change in the character of the stool—we may attempt to nourish the child; the easiest way of doing this, without fear of overloading the greatly debilitated stomach, is to administer liquid peptonoids, very cold, in very small quantities, half a teaspoonful dropped slowly on the tongue every hour, or the expressed juice of raw beef, given in like manner. Later on, if this is well borne, the quantity can be gradually increased. A few drops of genuine old tokay can now also be given either pure or mixed with the peptonoids or beef juice. For the next twenty-four to thirty-six hours the greatest care must be exercised in the feeding of the child, giving small quantities at rather long intervals (not less than two hours).

NO. 1138 MADISON AVENUE.

CLINICAL VARIETIES OF SUPPURATION OF THE MIDDLE EAR.

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IN order to clearly comprehend the subject of suppuration of the middle ear one should at the outset remember that this term is used in the generic sense, and includes several distinct subdivisions of otorrhœa—this differentiation being controlled by certain anatomical variations which normally exist in the caliber of the various recesses and passages between the ossicles, ligaments, and air cells of the tympanum, and their effect on drainage and ventilation.

With the exception of a few cases of traumatic and tubercular lesions of the tympanic membrane, it may be said that all chronic suppurative diseases are due to acute attacks which, through neglect or inefficient treatment, have failed to undergo resolution. The causes of these acute attacks will most frequently be found in acute catarrhal disease of the upper respiratory tract, or acute exacerbations of chronic diseases of the nose and throat, which in turn will be found to depend upon gross anatomico-pathological lesions which are removable.

Thus, adenoid vegetations in the vault of the pharynx are the most frequent cause of acute, recurrent, and chronic ear disease in children and youths, while in adults the originating cause will be found in exostoses from the posterior portion of the septum or hypertrophy of the posterior tips of the turbinated bodies. A nasal or pharyngeal lesion may be so situated as not to interfere with nasal respiration and yet be sufficient to produce ear disease, as in mild cases of adenoid, when the bulk of the lymphatic hypertrophy is not sufficient to obstruct nasal respiration but so located as to exert pressure on the cartilaginous portion of the Eustachian tube and interfere with its function. Mr. Milligan, of the Manchester Eye Institution,

* *New York Medical Journal*, September 10 and 17, 1892.

† The symptoms of severe intestinal catarrh and those of milk intoxication are almost the same.

‡ *Berliner klin. Wochenschr.*, November 16, 1888.

England (1), in an analysis of three hundred cases, gives the order of causation as follows: Forty-six per cent. due to acute nasal catarrh; twelve per cent. to naso-pharyngeal catarrh; twenty-four per cent. to scarlatina; nine per cent. to measles.

In all these causes it is evident the disease reached the middle ear by extension through the Eustachian tube.

Suppuration having once passed the acute stage, it becomes one of the most chronic diseases which we encounter, as a study of hospital reports will confirm.

In the paper of Mr. Milligan above referred to, thirty-five of his cases had lasted five to ten years, fifty-six from ten to twenty years, twenty-two upward of twenty years, and in fifty the exact number of years was not remembered. In a classified report of two hundred and ninety-three cases treated at the Dispensary of the University of Pennsylvania, Dr. Brown (2) gives seven per cent. of forty to sixty years' standing, nineteen per cent. twenty to forty years, twenty-nine per cent. five to ten years, and forty-four per cent. from six months to five years. Doubtless the chronicity of this disease, as in other surgical diseases, is influenced by the molecular resistance of the individual, and yet it is found in the robust as well as the cachectic—among the leading families of the world and the children of the poor. But there is another and more important controlling factor which is not mentioned in otological literature with the prominence which it deserves. It will be remembered there are four more or less separated spaces in the middle ear—viz., the atrium, the attic, the antrum, and the mastoid cells, extending in this order from the Eustachian tube to the apex of the mastoid process. Infection taking place from the Eustachian tube, the first only, or the more remote departments, may be consecutively involved, each aggression increasing the severity and danger of the disease and the difficulty of its treatment. If the communication between these principal chambers is so free that congestion is not sufficient to interfere with free drainage and the drum membrane ruptures or is opened, the danger is comparatively slight, but if these conditions are not present there is imminent danger not only to the function of hearing but to life as well. The attic cases have only recently been recognized as distinct clinical varieties.

This space, intervening as it does between the atrium and the antrum, is somewhat cut off from these cavities by the body and short process of the incus and the head of the malleus, and by a number of inconstant reduplications of mucous membrane and connective-tissue strands. The pouch of Prussak and others of less constancy described by Schmiegelow in this region are responsible for many of the obstinate cases of otorrhœa. This cellular structure is favorable for the retention of infectious material, which, being unaffected by treatment directed to the middle ear proper, pursues its destructive course. The favorite place for rupture of the pouch of Prussak is through Shrapnell's membrane, which forms its external wall. Perforations in this region are small and notoriously difficult to heal and are, according to McBride (3), Sexton (4), and Colles (5), associated with caries of the ossicles. Dr. Knapp (6) considers this due to the fact that this portion of the tympanic

membrane is formed by a reduplication of mucous membrane and skin only, which favors extension to the periotum.

The purulent process may localize itself in this system of cavities and pus escape through a perforation in Shrapnell's membrane without it being possible to prove the presence of any secretion in the tympanum, the communication with the lower space being obstructed by swelling inspissated pus or exuberant granulations. The walls of the malleo-incudal niche merge behind into the antrum. Purulent inflammation of this niche may spread by continuity to the antrum, and, *vice versa*, pus flowing from the antrum is very apt to infect this chain of cavities and produce a rupture of the flaccid membrane, provided the normal opening of the cells becomes occluded (6), (7).

In this connection it is of interest to know whether or not there is a normal opening between the external auditory canal and the attic through the disputed foramen of Rivinius. Walb (8) and von Troeltsch (9) hold there is such a foramen, and infection may take place directly through it, while Rudinger (10) and Randall (11), admitting its not infrequent occurrence, consider it simply an unclosed perforation of Shrapnell's membrane. It is a clinical fact that in many cases of perforation in this region it is impossible to get a perforation whistle by inflating the middle ear. This is due to closure of the narrow communication by swelling. The experiment of Morpugo has shown that this may be.

By puncturing Shrapnell's membrane of a normal ear he was able to get the perforation whistle on inflation, but no such passage of air could be produced in a congested ear.

This is an indication of the futility of the ordinary medication in these cases. Washes and powders do not reach the seat of disease, and only suffice to keep the external auditory canal approximately clean. Pus in this position is practically outside the body and does little harm. Cleansing the skin around a persistent sinus is not treatment—it is cleanliness, and as such is commendable; but the careful surgeon goes directly to the removal of the cause of the sinus, whatever it is and wherever it may be found.

Suppurative disease of the upper posterior tympanic space is particularly liable to involve the mastoid cells. Disease of these cells does not necessarily mean immediate serious symptoms, as pain, tenderness, or fever (12). By continued maceration in septic pus the bonelets become carious, the joints ankylosed, adhesions form, and thereby hearing is lowered. In children the health is depressed, the physical, and especially the mental, development retarded. They are slow to learn, and are called stupid and punished in proportion to the ignorance of their natural guardians in the same manner as are children with defective eyesight. Handicapped by lowered hearing, depressed in health by their disease, injured in pride by its repulsiveness, unjustly punished, they become sullen, careless, and backward. In addition there is a certain amount of cerebral circulatory disturbance produced by chronic congestion over the temporal bone which is a predisposing cause of various nervous diseases.

In chronic disease of the mastoid cells life itself is in constant danger, for in addition to the pus there accumulates in the air spaces a caseous mass of an intensely septic nature, similar in appearance to that found in tubercular glands, and composed of inspissated pus, decomposing fats, epithelial cells, streptococci, cholesterin, and various septic bacilli and cocci (13, 14, 15, 16, 17). This can not be discharged through the middle ear and can not for any length of time remain quiescent. Osseous trabeculæ become carious and are broken down, and should any impediment to the free escape of pus occur, the inner plate may become necrotic and give way under the pressure and the meninges of the brain become directly infected; or septic material may be carried through some of the veins which flow into the lateral or superior petrosal sinuses, producing thrombo-phlebitis or metastatic abscesses in various parts of the body.

The usual symptoms of mastoiditis—such as redness, tenderness, pain, and swelling behind the ear—are not always to be waited for in deciding upon an operation for the relief of pus in the mastoid cell.

In eighty cases reported by Green, of Boston (18), thirteen per cent. showed no external signs. D. Milton Green (19) reported five cases without external signs, yet pus was found in the mastoid at the operation, or, when an operation was refused, at the autopsy.

What, then, should be our treatment of suppuration of the middle ear? Manifestly the first indication is to prevent, as far as possible, further extension of the disease in the acute stage. To that end absolute rest in bed should be enjoined, hot applications made, and paracentesis of the membrana tympani performed as soon as bulging appears. By this means the tension and pain are reduced and the liability of extension lessened. The progress of pus into the external canal may be favored by the induction of a partial vacuum by the use of Siegel's speculum and the discharge gently removed by cotton applicators.

No injection of fluids should be allowed, as the tendency is to force pus into the deeper parts. The nose and throat should be examined and any abnormality corrected. As soon as a diagnosis of mastoiditis is made the cells should be opened without delay, as the danger is not in the operation but in the lack of it. Transillumination of the mastoid cells by the electric light, as proposed by me in the *New York Medical Journal* of July 15, 1893, will be found of great assistance in making an early diagnosis. If pus is believed to exist in the mastoid cells there is no more reason for delaying an operation than there is in appendicitis, as the disease means either speedy death or continued otorrhœa with great deafness and frequent acute exacerbations, in any one of which the patient may die. The disease can not undergo spontaneous cure, for the reason that the pus is contained in bony cells which can not contract to expel their contents; nor can it escape by gravity, for the cells are of such a labyrinthine formation that they can not drain in any position; therefore pus must remain as a foreign mass to produce recurrent attacks.

The object of the operation is to make a sufficient opening in the mastoid to allow the thorough removal of

pus, *débris*, and carious bone from all the cells and antrum. The greatest danger in operating is in opening the lateral sinus, with the consequent danger of hæmorrhage, septic infection of the meninges, and thrombo-phlebitis. Various methods of operating have been proposed, that of Schwartze being in greatest favor.

Küster and von Bergmann chisel away the posterior wall of the external auditory canal after displacing the auricle forward, but this method has not received favor in America. Bezold (20) and Bermingham (21), after measuring a hundred skulls, reached conclusions which are little more concrete than that the course of the lateral sinus varies considerably in different skulls, and therefore in operating keep as far anterior as possible. Körner, of Frankfort on the Main (22), in an elaborate comparison has observed that in brachycephalic skulls the sinus encroaches more deeply into the mastoid process than in those in which the cephalic index is high.

There is a large class of cases which are apparently simple cases of otitis media suppurativa chronica, but which are really unrecognized attic cases. The drum membrane is perforated, retracted, distorted, adherent. There is continuous or intermittent discharge, sometimes fœtid, always unsightly, and hearing is considerably lowered. The vibratory function of the membrane is destroyed by a large perforation. The ossicles are adherent together, displaced, or stiff and useless; indeed, worse than useless, for, being non-vibratory, they act as a stop on the membrane of the oval window, preventing a direct response to the sound waves which impinge directly upon it through a large perforation. In other cases the membrana vibrans is intact, but a perforation in the flaccid membrane leads directly into the attic, where suppurations and granulation tissue about the ossicles have rendered them useless. Caries of the temporal bone may add to the causes which keep up the suppuration. It is in this class of cases, as well as in certain cases of dry catarrh, that the operation of removal of the ossicles has been successfully practiced. The objects of the operation are to lessen the danger of mastoid complications by favoring drainage, to stop suppuration by removing necrotic bone and to relieve subjective noises, and improve hearing by relieving pressure on the stapes and allowing direct vibration of the secondary membrane in response to sound waves.

In thirty-two cases reported by Ludwig (23), the incus was found to be carious in eighty-four per cent. and both the malleus and incus in fifty per cent. In a hundred and twenty cases reported by Kretschman, Stacke, Sexton, Burnett, and Colles (24), it appears that in sixty per cent. the otorrhœa was cured, while the hearing was improved in fifty-two and a half per cent. Burnett (25) has recorded a case in which the hearing rose from nil to fifteen feet for ordinary conversation. The operation itself is a slight one, but requires considerable manual dexterity and an accurate knowledge of the anatomical relations. My own experience with it has been so favorable that I advise it in all cases of suppuration where the bonelets have lost their function, and in dry catarrh to lessen the subjective noises and increase the hearing when

bone conduction is good. The value of the operation is no longer a matter of doubt among progressive otologists.

References.

1. *Med. Chron.*, London, December, 1891, p. 409.
 2. *Med. and Surg. Reporter*, 1890, p. 444.
 3. *Text-book*, Edinburgh, 1892, p. 510.
 4. P. 63.
 5. *Am. Jour. of the Med. Sci.*, 1891, p. 477.
 6. *Trans. of the Am. Otol. Soc.*, 1889, p. 428.
 7. Politzer. *Anatom. and Histolog. Dissection*, 1892, p. 88.
 8. *Arch. für Ohrenheilkunde*, xxv.
 9. Von Tröltsch. *Lehrbuch*, vii. Aufl., S. 39.
 10. *Zeit. für Otol.*
 11. *Trans. of the Am. Otol. Soc.*, 1889, p. 409.
 12. Roosa. P. 493.
 13. Gredenigo. *Annales des maladies de l'oreille*, 1889, p. 526.
 14. Kanthack. *Arch. of Otol.*, 1890, p. 25.
 15. Rohrer. *Deutsche med. Woch.*, 1888, p. 44.
 16. Scheibe. *Arch. of Otol.*, 1890, p. 168.
 17. Heineman. *Proc. of the New York Path. Soc.*, 1891-'92, p. 69.
 18. *Am. Jour. of the Med. Sci.*, 1890, p. 575.
 19. *Jour. of the Am. Med. Assoc.*, Nov. 2, 1892.
 20. Pomeroy. *Dis. of the Ear*, p. 296.
 21. *Dublin Jour. of Med. Sci.*, 1891, vol. xci, p. 116.
 22. *Arch. of Otol.*, vol. xv, p. 281.
 23. *Arch. für Ohrenheilkunde*, vol. xxix, p. 241.
 24. *Am. Jour. of the Med. Sci.*, May, 1891.
 25. *Am. Jour. of the Med. Sci.*, February, 1890.
- 45 EAST FORTY-FIRST STREET.

A NEW AND PERFECTED ENTERIC PILL.

BY LOUIS WALDSTEIN, M. D.

It has long been considered desirable to reach the intestines, especially the upper tract, by medicines which, taken by the mouth, would pass the stomach without being dissolved. The experiments made by Unna, of Hamburg, with a keratin coating, as well as those made by others with various fatty substances with a high melting point, shellac, salol (Dieterich), etc., have not proved successful.

The trend of the modern treatment of intestinal disturbances is directed toward the neutralization or destruction in a chemical sense of those soluble toxic principles (ptomaines) which are the products of the metabolism induced by the numerous forms of micro-organisms which we have recognized as the cause of enteric fevers and of putrefactive changes in the intestinal contents. Furthermore, recent investigations have made it appear more than probable that certain symptoms in nervous complaints, functional chiefly, in neurasthenia, melancholia, insomnia, and many more, even epileptic seizures, may be in great part due to the effect of soluble toxic material absorbed from the intestinal tract. As far as I may be permitted to announce my own opinion, I should say that my observations have put the intimate causal connection here referred to beyond a doubt. This is not the moment to refer to definite instances, as I am still continuing researches in this direction; but since the number of cases, however

large, of one practitioner is much too small to reach generally acceptable conclusions, and since I consider the subject of great practical importance, I thought it well to call the attention of practitioners, more especially those who have hospital facilities, to the pill which has seemed in my hands to meet all the requirements of a true enteric pill.

When Unna first published his results I began to employ various methods of coating pills, assisted by a number of druggists of this city; but in whatever combination or proportion the various substances, insoluble in dilute acid and soluble in dilute alkaline liquids, were employed, the coating was incomplete, friable, or withstood, when perfectly seasoned, the action of the enteric fluids and passed through almost unchanged.

The coating which I now employ, and which answers all purposes required of such a mass, is a mixture of shellac and salol dissolved in alcohol. This mixture can be spread over a pill in a very thin layer and remains unchanged and perfect without becoming brittle for an indefinite time.

In order to determine the behavior of pills treated in this manner I have given methylene blue and found by lavage of the stomach that it remained undissolved quite as well as in acidulated gastric juice in the laboratory experiment, and that, on the other hand, the feces and urine passed were colored. Small doses of intestinal cathartics act much more promptly than if they were administered in the usual manner. I am unable to say at present, however, what effect, if any, can be observed if typhoid fever or enteritis were systematically treated with antiseptic remedies protected by the coating I am recommending in this imperfect manner. I propose making a thorough trial in various cases of self-intoxication from ptomaines as well, including some forms of eczema and urticaria, which have, I am quite sure, their origin in the intestinal canal. It will also prove useful to follow the late Sir Andrew Clark in treating with the enteric pills those anæmias which are caused by fecal retention.

Among the pills which I have caused to be made is included one containing extractum pancreatis and bicarbonate of sodium, to be tried in those cases of diabetes mellitus presumably dependent upon diseases of the pancreas.

I do not pretend to give here an exhaustive list of indications for intestinal medication; they will suggest themselves to the reader; nor is it the object of the present preliminary communication. I wish merely to facilitate the work along these lines by communicating to the profession my confidence in my new pill coating and to invite their collaboration. In order to bring this easily within the reach of those most interested, I have requested Mr. M. J. Breitenbach, of this city, to keep in stock a supply of "enteric pills," for which I have furnished some formulæ that may prove most acceptable for preliminary work.

In conclusion, I take much pleasure in acknowledging the helpful courtesy of Mr. Breitenbach during the several stages of my experiments.

450 MADISON AVENUE.

A CASE OF DERMATITIS HERPETIFORMIS.

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ETC.

THE distinguished dermatologist who first drew the attention of the profession to this composite disease states that every case encountered is entitled to a place on record (*Selected Monographs on Dermatology*, New Sydenham Society, London, 1893, p. 249).

The case herein reported, having been observed and treated in England at the beginning of the malady, may be of interest in so far as it recites the progress under altered environment.

Isabel G., aged nineteen years, born in England, came to this country four months ago. She has suffered from cough, dyspnoea, frequent and profuse perspirations, and reduction of weight to eighty pounds during the last three years. Amenorrhœa for last twelve months. Mother, grandmother, and one maternal aunt died from consumption. Physical examination of patient shows tuberculosis of both lungs and bacilli in sputum. About a year ago she was taken with chills, headache, malaise, and loss of appetite, and after a few days an eruption which looked like scarlet fever appeared on the face, thence spread rapidly all over the body. The red spots enlarged, became white, elevated, and filled with water. They were of various sizes, some as large as a shilling piece. Besides these large blebs there existed at the same time small, grape-like clusters of vesicles. The eruption was general, little or no space being left between the lesions. The itching was intense and whenever a vesicle was ruptured by scratching some hæmorrhage followed. This condition lasted six months, when the patient began to improve. She was treated at Middlesex Hospital by Dr. Pringle, and proudly and accurately spells out the doctor's diagnosis. She applied at the New York Hospital two months ago for treatment, and, as the dermatitis was then quiescent, no special treatment for that was adopted. She was ordered extract of malt with whisky and creosote for her pulmonary trouble, and under this medication the skin lesions and her general condition have seemed to improve. From the known history of dermatitis herpetiformis, however, a relapse is expected at any time.

The present appearance is that of an abundant, diffuse eruption, characterized by ill-defined erythematous patches with many more or less well-formed papulo-vesicles and vesicles without surrounding areolæ. No bullæ are present. Excoriations and blood crusts are numerous, but the patient states that the itching now is comparatively trifling when she remembers the sufferings of a year ago. The vesicles do not rupture spontaneously as in vesicular eczema. The eruption is very sparsely distributed over the backs of the hands, wrists, forearms, and feet, thus differing from erythema multiforme (Jackson, *Diseases of the Skin*, 1892, p. 142), as well as by its chronicity, more intense itching, greater tendency to relapse, and obstinacy to treatment. The patient is of the nervous, irritable, and anxious temperament frequently recorded in subjects of this distressing malady, and has herself noticed exacerbations of the eruption corresponding to emotional excitement or anger.

No. 29 EAST TWENTY-FOURTH STREET.

The Third International Congress of Dermatology will be held in London from July 31 to August 4, 1895. Dr. George Thomas Jackson, of New York, has been appointed foreign secretary for the United States, and will be glad to answer any inquiries concerning the congress.

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THE FAMILY DOCTOR AND THE HOSPITAL.

WE are glad to see increasing signs of a disposition on the part of our contemporaries to call upon hospital authorities to remedy a state of things whereby the family physician is blotted out, as it were, so far as regards a particular patient, the moment that patient enters a hospital for treatment. We lately cited very strong language from the *Lancet* on this point, and now we find the *Canada Medical Record* putting the matter even more forcibly. And yet there seems to be less reason for complaint in Montreal than in New York. In a few of our small hospitals any reputable physician is allowed to continue to treat those of his patients who may enter them, while in all the larger hospitals not only is this not tolerated, but the family physician, although usually allowed to be present as a spectator of any surgical operation performed on his former patient, and sometimes even invited, finds himself standing in no different relation to the case from that enjoyed by any other medical man who may by chance be present.

It seems that the Hôtel Dieu, the Notre Dame, and the Western Hospital, of Montreal, follow a more liberal and, we must say, a more enlightened policy; they receive any qualified physician's patients and afford them all their resources at the minimum charge, allowing them to remain under their own physician's care. Our contemporary relates that not long ago certain of the physicians connected with the Protestant General Hospital, in Ottawa, passed a resolution that only patients attended by the hospital staff should receive the benefits of the nursing and diet provided by the institution. At this the profession in general protested indignantly, and their protest was so thoroughly supported by the community that the obnoxious resolution was rescinded, but its spirit was kept up, for, rather than allow patients of outside practitioners to engage private rooms, these hospital physicians decided to exclude everybody from the privilege. This virtual assumption of ownership of the privileges of a hospital the *Record* likens to the holding of "pocket boroughs." Concerning the Montreal General Hospital, it says that it was built and is supported by subscriptions, not only from the rich, but from the poor, and is regarded as *par excellence* the public hospital of Montreal. "It seems incredible, yet it is a fact," it continues, "that, should even one of those subscribers become an inmate of this institution, he would not be permitted to have his family physician in attendance unless the said physician should happen to be a member of the staff—a hardship, it must be admitted, which affects equally patient and physician. Let us suppose the case of a gentleman who is found in a state of unconsciousness on the street. He is transferred to an ambu-

lance, and on 'coming to' finds himself in a private ward of this general hospital. He asks that his family physician may be summoned, but, should that gentleman not be one of the staff, the request is refused. Should he even present himself at the bedside of his friend, he will not be permitted to treat or even advise one who is now, *nolens volens*, the patient of this particular doctor on duty for the time, who will studiously exclude every possibility of outside interference. Should the patient ask to be removed, his family or friends will be at once warned of the danger attending any such change, and he is thus persuaded, forced would be the better term, to accept the services of one who is probably a stranger to him, at the risk of severing, it may be, a lifelong connection, and with it all the moral advantages begotten of years of mutual confidence and esteem."

The annihilation for the time being—and sometimes, thanks to the hospital doctor's skill and assiduity in blowing his own horn, for good—of the bond between a hospital patient and his family physician is certainly not in itself a good thing and not, we should say, made necessary or desirable by the exigencies of hospital work. A hospital must, of course, have its regular professional staff, but we hope some progress may be made before long in the effort to mitigate its action as an extinguisher of private practitioners' privileges and aspirations.

PSEUDO-SCIENCE AND THE COMMUNION CUP.

If we return to the subject of the alleged danger of the spread of disease through the medium of the communion cup, it is not because we have the slightest idea that any considerable proportion of the medical profession will be induced by the agitation now going on to conclude that there is any such real danger, but because, if the agitators continue to have their say without opposition, it is to be feared that the public will speedily come to look upon professed sanitarians as ridiculous. We have no desire that they should so figure before the community. The fundamental error made by those who urge the danger of the communion cup seems to us to be that they lay before the public as the real issue the abstract question of the possibility or impossibility of morbid material lodged on the cup being able to exert the same infective power that it would show if deposited elsewhere, and they throw the burden of proof upon their opponents, whom they are inclined to charge with resting their opposition on some such ground as that of providential interference. Now, this is not the question at all. The question is whether the use of the cup as it always is used in the communion has ever been known to spread infectious disease, or whether the cry that it involves any such danger rests upon any firmer ground than that of a strained theory.

It is well to bring experience to bear upon the settlement of questions of this sort, and even negative experience, provided it is of a certain extent, ought to settle the matter. Such a negative experience is well expressed in a letter from a clergyman of the Protestant Episcopal Church, published in a recent issue of the *Sun*. The clergyman in question says: "The danger of

a common chalice cup in the administration of the Holy Communion is certainly exaggerated, if, indeed, there be any danger at all. Thirty thousand clergymen of the Anglican Church consume what remains of the wine, after the other communicants have partaken, once every month at least, and the majority of them every Sunday; and I never heard of a case of infectious or other disease communicated in that way. I have done it myself for thirty years without a thought of danger or any evil results following. A more healthy body of men than the clergy does not exist, as every life insurance company will testify. The scare about a common chalice is needless. The theory of danger is exploded by the facts in the case."

When the promoters of this agitation can satisfy us that in a single instance disease has been communicated by the use of a common cup in the communion, we shall be willing to modify our judgment; in the mean time we see no end to be gained with their clamor except to bring them into notoriety, and we repeat, what in substance we have said before, that the community may rest assured that the medical profession does not regard the use of the communion cup as dangerous so long as the Academy of Medicine continues to make use of its loving-cup.

MINOR PARAGRAPHS.

THE MEDICINAL PLANTS OF INDIA.

THE Indian Drugs Supply Company, of Calcutta, has recently published an interesting pamphlet, by Purna Chandra Saha, formerly curator of the Hugli Botanical Gardens, entitled *The Illustrated Hindu Medicinal Plants*. There are numerous pictures of plants—some well known and others little known outside of India—and the plants are treated of satisfactorily in the text, which is partly in English and partly in Hindustani.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending September 4, 1894:

DISEASES.	Week ending Aug. 28.		Week ending Sept. 4.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	29	3	33	15
Scarlet fever.....	22	3	14	3
Cerebro-spinal meningitis. . .	0	1	0	0
Measles.....	13	1	14	1
Diphtheria.....	110	33	101	32
Small-pox.....	9	0	18	0
Tuberculosis.....	53	124	90	104

A Physician's Services gratefully Remembered.—Dr. Charles M. Green writes as follows to the *Boston Medical and Surgical Journal*: "The following instance of long-remembered gratitude for gratuitous medical service may be of interest to your readers: Many years ago a well-known physician of Boston attended a lady who was unable to pay for his services. Years passed; the physician died, and his family became scattered. But in 1893, thirty years after the doctor's death, information was received by his children that a general of the English army had died in London, leaving a will containing the following clause: 'I give and bequeath to the heirs of the late

Dr. ———, of Boston, for attendance on my sister when I was too poor to pay him, the sum of ———.' The bequest was duly received and divided among the doctor's surviving heirs, and a modest piece of silver plate now serves to remind each one that an act of professional kindness is not always forgotten, even long years after the doctor's labors are over."

A Singular Point in a Milk Adulteration Case.—The county analyst (Dr. Bostock Hill) has drawn attention in his report to a singular point in connection with milk adulteration. He said: "In one of the adulteration cases, after the defendant had pleaded guilty, the case was dismissed by the Bench on the ground that as milk was asked for, and not new milk, no offense was committed by the sale of milk from which a portion of cream had been removed. While not in any way presuming to question the propriety of this decision from a legal point of view, I can not forbear to call attention to the fact that if this decision be upheld the ordinary purchaser, when asking for milk, may be supplied not with milk, but with an article from which the most valuable substance has been removed. As milk is the only perfect physiological food for infants, it is important that one of the necessary and, indeed, most important constituents of diet should not be omitted." The Sanitary Committee, to whom Dr. Bostock Hill's report was made, recommended that the attention of the Local Government Board be drawn to the decision, with the view of having it revised or the law altered. The motion was adopted.—*Food and Sanitation.*

The Charcot Monument.—The *Gazette médicale de Paris* announces that circulars of subscription are now going about in Germany and Austria, and that among the first to sign the German circular and take the subscription under their patronage have been Dr. Erb and Dr. Hoffmann, of Heidelberg, and Dr. Jolly, of Berlin.

The Death of Dr. William C. Dabney, of Charlottesville, Va., took place on the 20th of last month. He was graduated from the Medical Department of the University of Virginia in 1868, and at the time of his death was professor of obstetrics and the practice of medicine in that institution. He was a man of a very genial nature, and possessed of more than ordinary ability as a practitioner and teacher. His death was due to congestion of the brain following an attack of typhoid fever.

Changes of Address.—Dr. Thomas H. Manley, to No. 115 West Forty-ninth Street; Dr. Charles P. Noble (Philadelphia), to No. 1637 North Broad Street; Dr. Charles A. Ring, from Johnson's Creek, Niagara County, N. Y., to No. 128 Fargo Avenue, Buffalo; Dr. Sara Welt-Kakels, to No. 814 Lexington Avenue.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from August 25 to September 1, 1894:*

HALL, JOHN D., Major and Surgeon, upon the arrival of MERRILL, J. C., Major and Surgeon, at Fort Sherman, Idaho, will be relieved and report for duty at Madison Barracks, New York, relieving CALDWELL, DANIEL G., Major and Surgeon. Major Caldwell, on being thus relieved, will report for duty at St. Francis Barracks, Florida, relieving KEAN, JEFFERSON R., Captain and Assistant Surgeon. Captain Kean, on being thus relieved, is ordered to Key West Barracks, Florida, for duty.

MAUS, LOUIS M., Major and Surgeon, Fort Sam Houston, Texas, is granted one month's leave of absence.

REYNOLDS, FREDERICK P., First Lieutenant and Assistant Surgeon, U. S. Military Academy, West Point, N. Y., is granted leave of absence for thirty days.

LA GARDE, LOUIS A., Captain and Assistant Surgeon, is relieved from duty as Attending Surgeon and Examiner of Recruits, Headquarters Department of the Colorado, and ordered to Fort Logan, Colorado.

KEAN, JEFFERSON R., Captain and Assistant Surgeon, is granted leave of absence for one month, to take effect when relieved from duty at St. Francis Barracks, Florida.

By direction of the Secretary of War, the following changes in the stations and duties of officers of the Medical Department are ordered:

GARDNER, W. H., Major and Surgeon, is relieved from duty at St. Paul, Minnesota, and ordered to Fort Custer, Montana, for duty.

McELDERRY, HENRY, Major and Surgeon, is relieved from duty at Omaha, Nebraska, and ordered to Fort Robinson, Nebraska, for duty.

ADAIR, GEORGE W., Major and Surgeon, is relieved from duty at Fort Robinson, Nebraska, and ordered to Washington Barracks, South Carolina.

CORSON, JOSEPH H., Major and Surgeon, is relieved from duty at Washington Barracks, South Carolina, and ordered to Fort S. A. Russell, Wyoming, for duty.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the two weeks ending September 1, 1894:*

KITE, I. W., Passed Assistant Surgeon. Ordered to hold himself in readiness for orders to the U. S. Steamer Constellation.

BAILEY, T. B., Passed Assistant Surgeon. Ordered to hold himself in readiness for orders to the U. S. Steamer Machias.

BROWNELL, C. D., BOYD, ROBERT, and PIGOTT, E. R., Assistant Surgeons, ordered to examination for promotion.

Society Meetings for the Coming Week:

MONDAY, September 10th: New York Academy of Medicine (Section in General Surgery); New York Ophthalmological Society (private); New York Medico-historical Society (private); Boston Society for Medical Improvement; Gynecological Society of Boston; Burlington, Vt., Medical and Surgical Club; Norwalk, Conn., Medical Society (private); Baltimore Medical Association; Idaho State Medical Society (first day—Boice).

TUESDAY, September 11th: New York Medical Union (private); Medical Societies of the Counties of Chemung (quarterly—Elmira) and Rensselaer, N. Y.; Newark, N. J., and Trenton (private), N. J., Medical Associations; Clinical Society of the Elizabeth, N. J., General Hospital and Dispensary; Northwestern Medical Society of Philadelphia; Baltimore Gynecological and Obstetrical Society; Practitioners' Club, Richmond, Ky.; Idaho State Medical Society (second day).

WEDNESDAY, September 12th: Metropolitan Medical Society (private); New York Pathological Society; American Microscopical Society of the City of New York; Medical Societies of the Counties of Albany and Montgomery (quarterly), N. Y.; Worcester District, Mass., Medical Society (Worcester); Philadelphia County Medical Society; Idaho State Medical Society (third day).

THURSDAY, September 13th: New York Academy of Medicine (Section in Pædiatrics); Society of Medical Jurisprudence and State Medicine; Brooklyn Pathological Society; Medical Society of the County of Cayuga, N. Y.; South Boston, Mass., Medical Club (private); Pathological Society of Philadelphia.

FRIDAY, September 14th: Yorkville Medical Association (private); Medical Society of the Town of Saugerties; German Medical Society of Brooklyn.

Proceedings of Societies.

CANADIAN MEDICAL ASSOCIATION.

Annual Meeting, held in St. John, N. B., on Wednesday and Thursday, August 22 and 23, 1894.

The President, Dr. T. S. HARRISON, of Selkirk, Ontario, in the Chair.

Epilepsy.—In a paper on this subject Dr. HATTIE, of Halifax, described various changes that had been said to take place in the cerebral cells during fits of different kinds, and pointed out that they might be due to the influence of some irritant acting upon them to produce a state of excitability, or to something produced in the brain and not eliminated quickly enough, so that the nerve explosion was Nature's method of getting rid of it. Convulsions were due to an abnormal performance of the functions of the cells of some part of the nerve centers, and upon the particular part depended the character of the seizure. The cause might be a poison generated in the system, and when this was the case the rational treatment would be eliminative and antiseptic. This he had tried by giving, in addition to potassium bromide, beta-naphthol and attending to the emunctories. The results had been very gratifying.

The subject was discussed by Dr. CAMERON, of Toronto, and Dr. WRIGHT, of Ottawa.

Tuberculosis of the Arm cured by Erysipelas.—Dr. MUIR, of Truro, gave the history of such a case. The patient was a woman, thirty-nine years old, who had had the disease in a well-marked typical form for fourteen years. The bacillus of tuberculosis was found in the discharges. The patient had been anesthetized, the sinuses scraped, and iodoform dressing applied, but little if any improvement had taken place until the end of five weeks, when, quite accidentally, the wound had become infected with erysipelas. The woman had then become very ill, but had finally recovered from the erysipelatous attack, and shortly afterward the tuberculous trouble had disappeared entirely. Photographs of the arm after cicatrization were shown.

The President's Address.—This related to his experience in medical matters for half a century back. At the outset of his professional career he had settled in the wilds of Ontario, near Lake Erie. That was in the days of ague, bilious remittent fever, murrain in cattle, and other diseases which, since the country had been cleared up, had become almost extinct. He gave a graphic clinical history of these various diseases and portrayed the different forms of treatment employed, both before his arrival in the settlement and afterward, especially by those who sought to charm away disease and by those who treated it according to Thomson's tenets. In those days whisky was considered by the people to be the sovereign remedy, and some of the medical practitioners bled, blistered, and salivated. In the latter part of his address the president advocated the establishment of uniform examinations for all who wished to practice in the Dominion, and said that the standard should be of the highest.

Appendicitis.—Dr. BELL, of Montreal, read a paper on this subject in which he gave his experience, including forty-eight cases. He would divide the cases into the gangrenous, the perforative, the non-perforative, and those in which the appendix was bound down by adhesions. The cases should be watched, he maintained, by a surgeon from the first, as little could be done medicinally. He was in favor of surgical interference in nearly all cases.

Dr. HINGSTON, of Montreal, thought that the operation was performed unnecessarily. No young man should attempt to

open the abdominal cavity without a consultation with one or more other physicians. The speaker had prevented operations twenty-five or thirty times, and in only one case had he had occasion to regret the course he had pursued. He was decidedly in favor of conservatism.

Sir JAMES GRANT reported two cases, one of the gouty form and the other rheumatic. He found it difficult to know when to operate, and he knew of no more perplexing point in surgery. It required great observation, discrimination, and judgment to know how to deal with the disease. He did not believe the trouble was due to concretions formed in the appendix, but attributed it to the haste and rush with which food was eaten at the present time and to allied causes.

Dr. SHEPHERD, who remarked that the surgeons got the worst cases, thought it was difficult to say just what proportion of patients were operated on. He advocated operating between the attacks as the safest course. In regard to McBurney's point, he thought the tenderness was due, not to the appendix, but to the inflamed condition of the mesenteric glands.

Dr. STRANGE believed in non-interference until there was evidence of pus, and then he would open the abscess like any other abscess. He leaned to conservatism in treatment.

Dr. CAMERON was in favor of conservative treatment. In the majority of his cases he had not operated at first, and he had found that the results had been as good in those cases as when the operation was performed early. In the gangrenous form, due to embolism of the appendicular artery, one should operate early.

Dr. BELL stated that in three of his cases the appendix had been wholly gangrenous. When he had followed the so-called conservative treatment, that consisted in waiting, he had lost a far greater proportion of his patients than he lost now. Of course, the very mild cases, in which, although all the typical symptoms might be present, they passed away in the course of twelve hours, need not be interfered with; they were probably cases of typhlitis.

Eye-strain Headaches.—Dr. MORRISON, of St. John, read a paper on this subject. Tenotomy, he said, relieved some of the reflex troubles for a time, but it was not ultimately successful. The trouble was really due to imperfect curvature of the cornea, and the imperfection might be very slight. This condition, added to the delicacy of the muscle of accommodation, when much near work was to be done with the eyes, overtaxed the ciliary muscle, and it either gave way or produced those reflex headaches which were so distressing. The pain was usually situated in the neighborhood of the temples, but sometimes extended to the occiput and down the back. Sometimes numbness occurred in other parts of the body, and in some instances digestive disturbances were a decided symptom. A proper correction of the myopia, hypermetropia, and astigmatism, together with the use of tonics, would remove the headache. The muscle would recover just as a sprained limb would if treated properly; the use of proper glasses was a crutch for the strained ciliary muscle.

The Influence of the Mind on the Body.—This was the subject of the address in medicine, delivered by Dr. BAYARD, who gave an outline of the anatomy and physiology of the nervous system, referring especially to the subject of pain. Instances were given in which emotions of various sorts caused contraction and dilatation of the terminal arteries with hyperæmia and stimulation of the secreting glands, or anæmia and checked secretion. The prevention of various nervous diseases was said to be attainable by reform in our educational and social systems.

Disease of the Ovaries and Fallopian Tubes was the subject of a paper by Dr. A. LAPHORN SMITH, of Montreal, who

gave numerous clinical histories and showed many pathological specimens.

Some Forms of Functional Derangement of the Liver was the title of a paper by Dr. J. E. GRAHAM. The author dwelt on the great importance of maintaining the integrity of the hepatic cells. They acted as a guard against invasion of certain poisons into the general circulation. Among these poisons were arsenic and phosphorus in the mineral kingdom, the poison of decaying meat and old cheese in the organic kingdom. Other poisons acting in the same way that he mentioned were those generated in a distended stomach, the specific toxins of typhoid fever and similar diseases, and the poisons generated in the intestinal tract in cases of constipation. These various poisons tended to injure the cells, and, passing into the general circulation, exerted their effects on the nervous system and on other parts of the economy. It was pointed out that an ordinary attack of biliousness depended on some occurrence of this kind. It was absolutely necessary that the exact cause of the disturbance should be ascertained before rational treatment could be employed.

Operations on the Brain.—Dr. HINGSTON reported four cases. Two of them had been for epilepsy, and had not been successful. One case was that of persistent pain located in one spot. It had been incessant and severe for a year. In trephining, a hydatid had been found pressing on the brain and it had been removed. The patient had made a good recovery. The other case was that of a young man, whom the author presented, who had suffered for twenty years as the result of a fall and injury to the right side of the brain. He had been the subject of paralysis of the left arm, spasm and overdevelopment of the orbicularis and the zygomatic muscles of the left side, and impairment of sight and hearing on that side. At the operation a thickened portion of bone was found impinging on the brain tissue, surrounded by a cartilaginous material which had been thrown out about it. There was no bleeding upon its withdrawal, and the man's face at once relaxed, and he seemed almost normal in his facial appearance. The arm also improved. The author recommended the use of a large trephine, two inches in diameter, for these operations.

The Prevention of Tuberculosis.—This was the subject of a paper by Dr. INCHES, of St. John, who cited numerous cases to prove the infectiousness of tuberculosis, and said that, while it was not infectious in the same way that small-pox and typhoid fever were, it was time that steps were taken to prevent its alarming spread. This could not be effected in a day, but the matter could be agitated, and it was the duty of the medical man to keep himself advised on the subject, and to counsel his patients of this class and their friends in regard to the best method of the prevention of tuberculosis. Some thought that notification, registration, and isolation should be observed in all cases. This was, perhaps, impracticable, but he thought that a rule might be made that all cases should be reported in which preventive measures had not been carried out when advised by the physician.

Dr. MACDONALD, of Hopewell, N. S., drew attention to the fact that out of 67,688 deaths in the Dominion 7,490 had been from consumption. He thought its prevention consisted in the destruction of the bacillus-laden tissue and sputa. He thought the profession should urge upon the State the necessity of progressive action in the way of notification, registration, and the establishment of sanatoria, both for the sake of the patient and for that of his friends.

Some Practical Points in the Treatment of Diseases of the Skin.—Dr. L. DUNCAN BULKLEY, of New York, read a paper on this subject in which he emphasized the necessity of the most careful examination in these cases at every visit of the

patient and the necessity, also, of continued treatment. In eczema he advised the careful use of new remedies, and recommended the alkalies to combat the acid state of the blood found in eczema. Arsenic should not be used indiscriminately. The custom had been to use irritating ointments, which was wrong. He had found the correction of some fault in the diet or the habits of the patient together with the employment of hygienic and tonic treatment of greater importance than local treatment.

The Use and Abuse of the Various Cautery Agents in the Treatment of Nasal Affections.—This was the title of a paper by Dr. E. A. KIRKPATRICK, of Halifax. He referred to the delicacy and importance of the nasal mucous membrane, and said that too often it had been the subject of harsh treatment. Caustics had been used more frequently for hypertrophic rhinitis than for anything else, and often too severely. He had seen the mucous membrane destroyed by the injudicious use of caustics, and in some cases very serious trouble had followed in connection with the ear, such as loss of hearing and mastoid disease. He used chromic acid in anterior applications and the galvanic cautery for posterior applications.

Dr. HAMILTON, of Montreal, read a paper on Adhesions of the Soft Palate and their Treatment.

Dr. J. T. STEEVES, of the St. John Lunatic Hospital, read a paper entitled A Medico-legal Romance.

AMERICAN ORTHOPÆDIC ASSOCIATION.

Eighth Annual Meeting, held in Washington, D. C., on Tuesday, Wednesday, and Thursday, May 29, 30, and 31, 1894.

The President, Dr. A. M. PHELPS, of New York, in the Chair.

Observations on Bending of the Femur in Adolescents.

—Dr. ROYAL WHITMAN, of New York, read a paper thus entitled. The author said that this condition of bending of the femur was most commonly found in adolescents who had developed rapidly and who had been subjected to overwork or strain of these parts. In 1889, E. Müller had reported this condition as a new type of disease. He had reported a series of four cases, and during the last two years the author had himself had four such cases come under his own observation. This communication embodied a report of two of the cases. The first was that of a boy who had been admitted to the hospital on June 7, 1892, with a history of having noticed a limp a year before, without assignable cause. This had gradually increased so that in six months it had become necessary to use a cork sole on his shoe. He presented the general appearance of a patient with congenital dislocation of the hip. The actual shortening was three quarters of an inch, and the apparent shortening three inches and a half. There was no limitation of flexion, extension, or rotation of the limb, and all movements were free and painless. The head of the bone was found to be in the acetabulum. In the second case reported the diagnosis of bending of the femur had been made at an earlier stage, so that he had been able to prepare a series of photographs illustrating the patient's condition from time to time. The patient was a boy of sixteen years, in whom both femoral necks were affected with this disease. When admitted in July, 1893, there was nothing of special importance to be observed except a slight eversion of the foot and a condition of flat-foot. The trochanters were found to be slightly above Nélaton's line, and his gait was somewhat rolling in character. Adduction was one third of the normal. The patient then passed out of observation for a period of three months, and on his return was found to have a much worse gait than before. Behind each trochanter there was a deep sulcus, the legs were adducted, and

on attempting to flex them they were immediately crossed one upon the other. There was no pain or spasm. By May 1, 1894, adduction had increased so much that it was only with the greatest effort that he was able to pass one leg by the other.

This bending of the femur appeared to be a comparatively rapid process, and the head of the bone was usually pressed downward and backward in the direction of least resistance. Where the condition affected only one side, the symptoms were stiffness and limping due to the shortening, but if both sides were affected there was adduction with a peculiar rolling gait due to interference of the knees. The character of the pain experienced by the patient was similar to that found in cases of knock-knee and bowleg in adolescents. The treatment consisted in (1) removing the exciting cause—overwork or strain usually; (2) local massage and manipulation directed toward overcoming the restricted motion; and (3) osteotomy below the trochanter. Ordinarily these cases did not present themselves until they had reached a stage in which the diagnosis was not particularly difficult. In all cases of dislocation of the femur upward the neck of the displaced bone could be traced upward to its abnormal situation, but in bending of the femur only the prominent trochanter could be felt. Where the distortion was due to necrosis or other chronic disease, evidences of these conditions would be present and would prevent one from making an erroneous diagnosis. It was important to remember that there was no local swelling or infiltration in these cases of bending of the femur, and that the only motions that were restricted were abduction and inward rotation. If the condition went on unchecked, the deformity showed a marked tendency to increase upward.

A Hip Splint.—Dr. WALLACE BLANCHARD, of Chicago, then exhibited his hip splint, which he had used in his own practice with much satisfaction for the last twenty-two years. It made longitudinal traction by means of adhesive straps, and lateral traction by a band passed around the thigh. The main strip down the back of the thigh and leg furnished the necessary immobilization, and the splint, when properly molded to the body, not only furnished support, but was comfortable and should not cause pain. It was equally applicable to patients in bed and walking patients, and should not be removed except when it was necessary to make repairs. He had found that eight to nine pounds of traction were usually sufficient for children, but that fifteen or twenty pounds might be required for the first two or three days of treatment.

The Question of Priority in the Application of Lateral Traction to Relieve Intra-articular Pressure in Hip-joint Disease.—The PRESIDENT said that his first paper on this subject had been published in May, 1889, and that in August of the same year Dr. Blanchard had published a paper in which he had stated that he had been using lateral traction also for some time. Sayre had maintained that he had applied lateral traction to a patient as long ago as in 1872, but investigation showed that as a matter of fact he had only applied straps with the object of overcoming inward rotation. The Germans had mentioned lateral traction as far back as 1873, but only as an argument against any form of traction.

Dr. BENJAMIN LEE, of Philadelphia, said that in the hip splint used by Dr. Taylor and himself, as long ago as in 1862, he thought that lateral traction had been employed.

Dr. WHITMAN said that he believed in the principle of lateral traction, but he did not think that Dr. Phelps's apparatus applied it in an efficient manner.

Dr. PHELPS said that, if the splint was bent far enough away from the thigh and traction was applied just above the knee joint, it would prove an effectual means of relieving intra-articular pressure. He said that he approved of Dr. Blanchard's

splint, which had just been exhibited, but he thought it had one important disadvantage—i. e., that it did not extend below the bottom of the foot.

Congenital Dislocation of the Hip.—Dr. L. A. WEIGEL, of Rochester, reported two cases. The first was that of a boy who had been born after a difficult labor and foot presentation. During the first few days of life he had a number of convulsions. It was noticed soon after that there was an abnormal condition of the hand, but the disability of the leg was not observed for a considerable time. The child was inclined to be vicious and destructive. There was a marked spastic condition of the left arm, which was shorter than the one of the opposite side. The head of the femur was freely movable on the dorsum of the ilium, and, with slight traction and rotation, the head could be drawn down to its normal position, but easily returned to its former situation. He could not determine the existence of a rudimentary acetabulum. Ophthalmoscopic examination showed a double optic neuritis and secondary atrophy from some intracranial cause. Massage was ordered for the arm, and the long traction splint was applied, in order that the limb might be maintained in a proper position and the child enabled to walk about. Examination made recently showed that the child had improved to a remarkable degree. Three weeks ago he had begun to stand and was now walking, but the hand could not be opened voluntarily. His mental condition was also decidedly better. Notwithstanding this great improvement, it was found on removing the hip splint that the head of the femur returned just as readily to its abnormal position as it had done before the treatment was begun.

In the second case reported the child had been noticed, shortly after a normal birth, to have some abnormality of the right hand, and when he began to walk, a "hip limp" was observed. In this case there was a well-marked spastic condition of the arm and leg with a displacement of the right hip, which was readily reduced. The acetabulum was only slightly developed. The mental condition of the child was normal. Here there was no history of an instrumental labor, or of premature birth, or of asphyxiation, yet the tonic contraction in the arm was greater than in the first case.

Dr. BENJAMIN LEE spoke of a case which he had seen for the first time about sixteen years before. Then there had been a spastic condition of the left arm, but, when he had seen the patient quite recently, he had found all the movements of the hip somewhat restricted. He considered the case essentially similar to the one just reported.

Dr. F. S. COOLIDGE, of Chicago, suggested that in Dr. Weigel's case the dislocation might have been produced by severe spastic contraction of the foot.

Dr. WEIGEL replied that this could not be the case, because there had been a spastic condition ever since the birth of the child.

The Ætiology of Deformity in Knee-joint Disease.—Dr. A. E. HODLEY, of Chicago, then read a paper on this subject. The paper was an answer to a similar communication presented to the association at its last meeting by Dr. A. M. Phelps. The author of the present paper said that anatomy taught that the knee joint was not a simple hinge joint, as there was no common center around which the head of the tibia could revolve. As the condyles were of unequal lengths, there was a rotation of the tibia upon itself, thus greatly complicating the mechanics of this joint. The flexor and extensor muscles were equally balanced when the limb was fully extended, but as flexion progressed the flexor diminished in power, because the tendon constantly changed its direction until, when it reached 135°, the flexors actually became extensors. During this change of position the leverage was gradually diminished from an inch

and a half to no leverage at all. His paper was founded on a series of observations made upon a number of medical students to determine the power of various muscles. When the leg was straight he had found that flexion was about seventy-five pounds, and that, when the person was lying upon the back with the legs flexed at right angles and the knee pressed against a block, the power of flexion was only about forty pounds, thus showing that the power of the flexors had diminished thirty or forty per cent. during the change from the straight position to flexion at 90° . The power of extension with the leg at 90° was about a hundred and seventy-five pounds. The strongest point of the flexors was weaker than the weakest point of the extensors, and between 90° and 130° there was no appreciable difference in the powers of the extensor muscles. It might therefore be said that the preponderance of power was in favor of the extensor muscles, and that it had nothing to do with the production of deformities of the limb. He did not think that there was anything in the clinical history to show that the extensor muscles atrophied any faster than the flexors.

Dr. W. E. WIRT, of Cleveland, gave a mathematical demonstration of the method of determining the amount of force of the muscles and the amount of friction.

Dr. WHITMAN said that he thought one important factor, that of the gastrocnemius muscle, had been left out of consideration.

The PRESIDENT said that he believed the propositions in the paper were entirely incorrect. He had himself obtained results which tallied very closely with those of Horton, of Dublin, and these results showed a force of about thirty-five where Dr. Hodley had estimated a force of about seventy-five pounds. His main criticism applied with equal force to the other figures presented in the paper. It should not be forgotten that when the leg was flexed the quadriceps muscle acted over a pulley, and its force was therefore diminished by friction. When the limb was straight there was no friction, but when it was flexed there was a force so great as to be sufficient under certain circumstances to produce a fracture of the patella. In his own experiments he had found that when the leg was perfectly straight the extensor muscles were at the greatest possible advantage, and that the amount of resistance was two hundred and forty pounds, as against one hundred and thirty-six pounds when the limb was flexed. The insertion of the muscles was such that they were acting on a lever represented by the distance of the attachment of the muscle to the center of the bone. As the limb was flexed, the lateral ligaments of the knee were relaxed, and the biceps tendon, being attached to one side of the end of the fibula, really represented an attachment to a lever having a length equal to the distance to the center of the condyle to this muscular attachment. This necessarily caused a rotation of the limb outward. The conclusions which he would draw from his studies on this subject were that the typical deformity was produced by a voluntary effort to relieve pain by diminishing intra-articular pressure.

Dr. JOHN RIDLON, of Chicago, said that apparently no account had been taken so far of the fact that as the muscle approached the point of full contraction its power was diminished.

Dr. HODLEY replied that he had considered this point in the paper but had omitted it in reading. He did not think that the friction produced by the tendon passing over the pulley was sufficient to require consideration. The experiments of Dr. Phelps had been made upon only one man, whereas his observations had been made on eighty students, and therefore he thought the average result represented more nearly the correct figures.

Dr. E. H. BRADFORD, of Boston, then made some remarks in

connection with the presentation of a pathological specimen from a case of Hoffa's operation for congenital dislocation of the hip. The object of the operation was to make a new acetabulum for the reception of the dislocated head of the femur, and Hoffa had maintained that as the acetabulum was the thickest portion of the bone there could be no danger of perforating the bone by freely curetting out a new acetabulum. This contention was, however, incorrect, as was well illustrated in the specimen he presented. The specimen also showed that he had not been able in this particular case to detect on palpation the existence of a well-developed acetabulum—in fact one that was better than the one he had made at the time of the operation. It would also be noticed that when the head of the bone was placed in the acetabulum the limb could not be straightened, apparently because of the resistance offered by the Bigelow Y-ligament. On this account the speaker suggested that the capsule be divided anteriorly. He thought that by thus modifying the operation the condition of congenital dislocation would prove to be a curable one.

Dr. BRADFORD then presented a specimen of rhachitic deformity of the hip occurring in an adult, and also a knee joint showing a periostitis above the head of the tibia.

Dr. WHITMAN said that the Lorenz operation was practically the same as the modified operation suggested by the last speaker. He approved of the operation and agreed with Dr. Bradford as to the obstacles ordinarily met with in the reduction of the deformity. He wished to emphasize especially one point which he thought was not fully appreciated, and that was that there was great disability and often pain or discomfort in cases of congenital dislocation of the hip.

Dr. WEIGEL said that his experience confirmed the remarks just made regarding the great degree of disability present in cases of double congenital dislocation of the hip, but he had found no special difficulty in his cases in reducing the deformity. He did not think the acetabulum was equally rudimentary in all cases, and therefore he thought that there were some examples of this condition which could be properly relieved by continued traction and without resort to operation.

Dr. DE FOREST WILLARD, of Philadelphia, said that it seemed to him that the specimen just presented was exceptional in that it did not show as great a degree of deformity of the acetabulum as was ordinarily present. Where there was a long, oval-shaped acetabulum he did not believe an operation was likely to prove successful. He had seen great disability in these cases, but never true pain.

Dr. BERNARD BARTOW, of Buffalo, reported the case of a child of three years in whom the use of continuous traction for a period of six months had resulted in keeping the head of the bone in its proper position, so that it could not be dislocated by the application of a reasonable amount of force. This case would seem to prove that there were some cases in which the acetabulum was fairly developed, and that there was a fair prospect of success from the employment of mechanical treatment.

Dr. WIRT said that he had seen cases of congenital dislocation of the hip in which there had been actual pain on walking.

The PRESIDENT said that the only case of congenital dislocation of the hip on record that had been entirely cured was one which had been operated upon by Hoffa's method, and, as none had been cured by mechanical means, he thought we should resort at once to the operative method. If suppuration should occur as a result of the operation there would be reflex spasm, and this would result in a serious deformity; hence one should be careful to secure primary union when operation was attempted.

Dr. BRADFORD said that, from an examination of three other dried specimens in the Warren Museum, he had been led to be-

lieve that in children at least the condition was not due to an arrest of development, but to a genuine *congenital* dislocation. It was certainly true that suppuration after Hoffa's operation was a serious complication. He did not deny the great value of operative treatment, but he still felt that, as there was not always great disability in adult cases, mechanical treatment should at least be given a fair trial.

(To be continued.)

Book Notices.

Inebriety or Narcomania: its Ætiology, Pathology, Treatment, and Jurisprudence. By NORMAN KERR, M. D., F. L. S., Fellow of the Medical Society of London, etc. Third Edition. London: H. K. Lewis, 1894. Pp. xxxix-780. [Price, 21 shillings.]

THE last edition of this most excellent work is much enlarged and brings all that is reliable in our knowledge of the subject down to the latest date. Unfortunately, nothing of note within its scope has occurred in the way of discoveries in regard to medical treatment, ætiology, or pathology. One improvement, however, and a most important one, has been growing and fixing itself in the minds of men during the last two or three decades. It is the growth of the idea that the inebriate, properly so called, is not a reckless, devil-may-care, desperate, and selfish individual; but one who, whatever may have been the origin of his troubles, is bearing the burden of one of the most frightful misfortunes that can befall a human being. And this is more especially the case when the victim, as frequently happens in the most aggravated and intractable cases, is a woman of refined nature, perhaps a mother, or an intellectual professional man of high ideals, noble aspirations, and ambition.

The author of the work before us tells of the development of this conception in his own mind during the thirty years of his experience with inebriates. And he evinces a spirit of charity and of sympathy most admirable, together with great scientific acquirement and perfect fairness of judgment, a combination as rare as it is delightful to contemplate.

It is not to be inferred from what we have said that Dr. Kerr exhibits any of the maudlin sympathy with reckless prodigals and selfishly vicious "rounders" so often and, for public morals, so injuriously manifested by certain hysterical persons of both sexes whose fad is to present bouquets and compliments to malefactors. He attacks a difficult subject with fairness and an honest attempt to explain, so that even the non-medical reader may understand the pathology of this puzzling condition. He even makes clear how it may happen that the most distressing mental and moral aberrations may occur without its being possible to demonstrate any deviations from the normal structures either in the cerebro-spinal axis or in other important organs. This, of course, is easily intelligible to the student of biology, who understands the relations between function and structure. And, had the author had the time and space, which were denied him by the enormous amount of material with which he was compelled to deal, to go into the scientific psychological aspects of the case, as Professor Coulston has done, if our memory serves us, he might have shown with still greater clearness the futility of always seeking for a visible bodily substratum for mental states and operations of the greatest importance to individuals and society.

In presenting this work to the medical profession it is scarce-

ly necessary to review its chapters in detail. To those who are specially interested in the subject Dr. Kerr's ideas are already familiar. Those who have not that acquaintance with them should read the book itself, as, though large, it is free from verbosity, and one must read his own words in order to enter into the beautiful spirit of his work. To any who may be beginning the study of this important subject of inebriety we can recommend no better, clearer, or more interesting work upon the subject.

In addition to the old forms of inebriety, we have some of the newer and, from a pathological point of view, more interesting ones. For instance, the outbreak of the ether habit in northern Ireland, a most destructive form, which fortunately was easily broken up when the government finally took such action as to render it impossible to procure the ether except from an apothecary and on a physician's prescription. To the cocaine habit Dr. Kerr devotes but a small amount of space. It was more prevalent in this country than elsewhere, for a time, apparently, but, since the profession have become aware of its dangers and ceased prescribing it almost entirely, we think it is no longer formidable so far as the number of its victims is concerned. The use of methylated spirit, too, which had a short run in the north of Ireland, was easily suppressed by making it too nauseous for use.

Besides the matter, we must commend the form of this work. It is a handsome book, well bound, on fine paper, printed with large and elegant type, has those marginal notes which are often so convenient as aids to reference, and, in fine, is a valuable as well as a handsome addition to the physician's library.

Micro-organisms in Water: their Significance, Identification, and Removal, together with an Account of the Bacteriological Methods employed in their Investigation. Specially Designed for the Use of those connected with the Sanitary Aspects of Water Supply. By PERCY FRANKLAND, Ph. D., B. Sc. (Lond.), F. R. S., and Mrs. PERCY FRANKLAND. London and New York: Longmans, Green, & Co., 1894. Pp. vi-532.

SINCE the extensive and classical work done by the State Board of Health of Massachusetts in 1888-'89, there has been no such valuable contribution to this subject, in the English language at least, as is recorded in the work before us. A new epoch has been opened in the examination of waters used for drinking purposes and in their purification, since bacteriology has supplanted the old methods of chemical testing by the new and more reliable ones for the determination, not of the chemical contents of water, but of the forms and quantities of bacterial life which it contains; for nothing has been more clearly demonstrated than that the safety or danger of those who use a given water for drinking does not depend on the presence or absence of so much organic matter, but on the presence or absence of particular kinds of bacteria and the number of them to be found.

Professor and Mrs. Frankland deserve the thanks of the civilized world for the care and patient toil which have brought forth the results published in this beautiful work, a labor of love, unquestionably, for their enthusiasm is everywhere evident, reminding one of the pleasant and profitable embryological labors of Arthur and Miss Balfour.

Our space does not admit of a full account of this new and interesting series of observations. It would take many pages to give the reader an adequate idea of the points brought out and of the many new and sometimes startling facts narrated by them, especially in regard to the effects of filtration. Their opportunities for investigation, as presented by the purification

methods of the numerous water-supply companies of English cities, supplemented by others on the continent of Europe, have afforded ample materials for reliable and extremely valuable inductions in this department of public hygiene.

There could be no more forcible illustration of the value of sand filtration than that afforded by the authors' comparison of the different experiences of the two cities, Hamburg and Altona, in the late cholera epidemic. Hamburg was supplied with water taken from the Elbe above the city, but not subjected to any purifying process. Altona, on the other hand, used the Elbe waters *below* Hamburg, infected with the sewage of that great and pest-ridden city. But the water used in Altona was passed through the modern sand filters. The result was in favor of Altona as ten to one and more.

Further points of great practical interest are that new filters, are not so efficacious as those a few days old; that from this on for many weeks age does not seem to bring deterioration to these large filters until they become so choked that pressure must be applied to cause the water to pass through with sufficient rapidity; and that the growth of a fine slime in the filters seems to be the main cause of the more thorough separation of microbic bodies. It is also of interest to find that garden soil, peat, and such fine earthy materials make the best of all separators; but, unfortunately, on account of the slowness of their action they do not seem as yet to be available.

We regret that the authors of this work had not seen the observations on the Brooklyn water supply published by Dr. Smith Ely Jelliffe in the *Brooklyn Medical Journal* last spring. Next to the labors of the Massachusetts State Board, Dr. Jelliffe's examinations are, we think, the most important yet made in America, and their completion is looked for with great interest.

BOOKS, ETC., RECEIVED.

A Treatise on the Principles and Practice of Medicine; designed for the Use of Practitioners and Students of Medicine. By Austin Flint, M. D., LL. D., Late Professor of the Principles and Practice of Medicine and of Clinical Medicine in the Bellevue Hospital Medical College, New York, etc. Seventh Edition, thoroughly revised by Frederick P. Henry, A. M., M. D., Professor of the Principles and Practice of Medicine in the Woman's Medical College of Pennsylvania. Philadelphia: Lea Brothers & Co., 1894. Pp. 15-19 to 1143. [Price, \$5.]

Aseptic Surgical Technique: with Especial Reference to Gynecological Operations, together with Notes on the Technique employed in Certain Supplementary Procedures. By Hunter Robb, M. D., Associate in Gynecology, Johns Hopkins University, etc. Illustrated. Philadelphia: J. B. Lippincott Company, 1894. Pp. xvi-9 to 264. [Price, \$2.]

Myxœdema, Cretinism, and the Goitres, with some of their Relations. By Edward T. Blake, M. D., M. R. C. S., Life Associate, Sanitary Institute, Great Britain, etc. Bristol: John Wright & Co., 1894. Pp. xi-13 to 89. [Price, 3s. 6d.]

The Jewish Method of Slaughter compared with Other Methods from the Humanitarian, Hygienic, and Economic Points of View. By J. A. Dembo, M. D., Physician to the Alexander Hospital, St. Petersburg, etc. Translated from the German with the Author's Amendments. Published by the Trustees of the Late J. A. Franklin. London: Kegan Paul, Trench, Trübner & Co., 1894. Pp. xiv-111.

De l'agrandissement momentané du bassin. Rapport lu au Congrès international des sciences médicales tenu à Rome du 29 mars au 5 avril 1894. Par Adolphe Pinard, professeur à la Faculté, membre de l'Académie de médecine. Paris: G. Steinheil, 1894. Pp. 59.

The Insanity of Overexertion of the Brain; being the Mor-

rison Lectures delivered before the Royal College of Physicians of Edinburgh, Session 1894. By J. Batty Tuke, M. D., F. R. C. P. E., F. R. C. S. E. With Illustrations and Diagrams. Edinburgh: Oliver & Boyd, 1894. Pp. viii-66. [Price, 6s.]

A Treatise on Appendicitis. By George R. Fowler, M. D., Examiner in Surgery, Medical Examining Board of the Regents of the University of the State of New York, etc. Philadelphia: J. B. Lippincott Company, 1894. Pp. 16-17 to 190. [Price, \$2.]

Handbook of Obstetric Nursing. By Francis W. N. Haultain, M. D., F. R. C. P. Ed., and James Haig Ferguson, M. D., F. R. C. P. Ed., M. R. C. S. Eng. Second Edition, revised and enlarged. With Thirty-three Wood Engravings. Philadelphia: J. B. Lippincott Company, 1894. Pp. xiii-243. [Price, \$1.]

The Science of Vital Force. Its Plan, Division of Function, and Operative Methods in Health and Disease. An Involuntary Agency of Nature that can be Harnessed and Utilized. By W. R. Dunham, M. D. Boston: Damrell & Upham, 1894. Pp. 8-9 to 198.

Two Cases of Unclassified Infection. By W. F. Arnold, M. D., Passed Assistant Surgeon, U. S. N. [Reprinted from the *Occidental Medical Times*.]

Some Observations on Gonorrhœa in the Male. By W. F. Arnold, M. D., Passed Assistant Surgeon, U. S. N. [Reprinted from the *Southern Practitioner*.]

Asepsis in Minor Procedures. By Hunter Robb, M. D., Johns Hopkins University. [Reprinted from the *Maryland Medical Journal*.]

Notes on Gynecological Technique. By Hunter Robb, M. D., Johns Hopkins University. [Reprinted from the *New York Journal of Gynecology and Obstetrics*.]

Practical Application of the Principles of Sterilization. By Hunter Robb, M. D., Johns Hopkins University. [Reprinted from the *American Journal of Obstetrics*.]

An Operating Table. By Hunter Robb, M. D., Johns Hopkins University. [Reprinted from the *Johns Hopkins Hospital Bulletin*.]

Abdominal Surgery on the Battlefield. By N. Senn, M. D., Ph. D., etc. [Reprinted from the *St. Louis Clinique*.]

The Comparative Rarity of Pulmonary Tuberculosis in the Highlands of Pennsylvania and the Adjacent Counties of New York. By Guy Hinsdale, M. D., Philadelphia. [Reprinted from the *Medical News*.]

A Case of Male Hysteria characterized by Recurrent Attacks of Motor Aphasia and Lethargy; Apparent Cure by Hypnotism and Suggestion. By Theodore Diller, M. D., Pittsburgh, Pa. [Reprinted from the *International Medical Magazine*.]

The Non-operative Treatment of Brain Tumors. By Theodore Diller, M. D., Pittsburgh, Pa. [Reprinted from the *University Medical Magazine*.]

A Brief Consideration of the Cases of Appendicitis occurring in the Practice of Professor William H. Carmalt. Being a Report to the Committee on Matters of Professional Interest of the Connecticut State Medical Society for 1894.

Massage Methods for the Relief of Tinnitus and the Improvement of Hearing. By Louis J. Lauterbach, M. D., Philadelphia.

The Contagious Aspect of Pulmonary Tuberculosis. By A. M. Cooper, M. D., Point Pleasant, Pa.

Treatment of Inoperable Malignant Tumors with the Toxines of Erysipelas and the Bacillus Prodigiosus. By William B. Coley, M. D., New York. [Reprinted from the *American Journal of the Medical Sciences*.]

Lectures on Rectal and Gastro-intestinal Surgery, with Demonstrations. By H. O. Walker, M. D., Detroit, Mich. [Reprinted from *Mathews's Medical Quarterly*.]

Medical Tuberculosis. By Hugh Hamilton, M. D., Harrisburg, Pa.

Transactions of the Medical and Chirurgical Faculty of the State of Maryland, Ninety-sixth Annual Session, held at Baltimore, April, 1894.

Transactions of the Medical Society of the State of California, Session of 1894.

Miscellany.

The Treatment of Gastralgia.—The *Presse médicale* for August 18th publishes an article on this subject in which the author remarks that the most painful gastralgia is found in dilatation of the stomach with excessive fermentation, in excess of hydrochloric acid in the stomach, in ulceration of the stomach, and in cancer. Much of the so-called gastralgia is due to diseases at a distance from the stomach. The gastric paroxysms of tabes, hepatic colic, floating kidney, and nephritic colic are often regarded as simple gastralgia. Small hernias of the linea alba, also femoral and inguinal hernias, may cause very violent pains in the stomach. When the extrinsic cause has been found and treated, and the gastralgia persists, the means directly employed against the pain should be external and internal. The former are revulsives, narcotics, and electricity. The blister is one of the revulsives most frequently employed. It may be used alone or associated with morphine. The raw surface is dressed with one of the following mixtures: Morphine hydrochloride, three twentieths of a grain; bismuth subnitrate, fifteen grains. Repeated applications of the actual cautery are less tedious but less efficacious than the blister. The cautery held in place for some time is one of the most powerful agents in persistent gastralgia, for example, in that due to cancer. If the tumor is very near the abdominal wall, the cautery is applied at some distance; placed directly on the tumor it may facilitate the production of a gastro-cutaneous fistula. In certain forms of gastralgia, which seem to follow the cure of eczema and of psoriasis, irritants are applied on the surface, such as chloroform with turpentine and an ointment containing antimony. The irritation caused by this ointment should be watched. When the paroxysms are very sharp, more rapid means should be employed, such as mustard poultices, compresses saturated with chloroform, chlorethyl, and methyl chloride, sometimes applied in powders, and sometimes by *styphage*. As a narcotic, Gueneau de Mussy advises the following plaster: Diachylon, theriaca, and extract of belladonna, equal parts. Extract of hemlock, in the form of a plaster or an ointment of from sixty to a hundred and twenty grains in four hundred and fifty, has a special action in cancerous gastralgia. Electricity, says the author, should be tried in nervous gastralgia above all. The continuous current should be employed, and established and suspended successively without a shock. A large positive plate sixty centimetres in diameter should be put on the epigastrium. It may be moistened with a 1-in-50 solution of antipyrine, or a 1-in-100 solution of cocaine. The negative, of at least half the size, should be placed on the left lumbar region. The intensity of the current should not exceed from five to six milliamperes, and the duration of the application should be ten minutes. The negative plate may also be placed at the left side of the neck, directly over the mastoid process, in order to act on the great sympathetic nerve. The intensity of the current should not exceed from two to three milliamperes. Special precautions should be taken to prevent too rapid variations of

intensity. The electricity should be given to the patients while they are lying down. A simpler application is that of faradization over the pit of the stomach, but it gives less constant success than the continuous current.

Internal treatment should be reserved as much as possible for the more serious forms of the disease. Chloroform, opium and its derivatives, cocaine, extract of cannabis indica, and cundurango may be employed. Saturated chloroform water should be diluted with an equal part, and often with two parts, of distilled water. The following is prescribed: Chloroform water, 450 grains; distilled water, 900 grains. Opium may be given pure. Peter has often prescribed, sometimes before a meal, sometimes during the paroxysms, one of the following capsules: Crude opium, three tenths of a grain; bismuth subnitrate, thirty grains. Morphine should at first be given in drops, from ten to thirty of the following solution in a little sweetened water: Cherry-laurel water, seventy-five grains; morphine hydrochloride, a grain and a half. In purely nervous gastralgia, injections of morphine should be especially distrusted; it is in cancerous gastralgia that these injections may be employed. The same reserve should be observed in the use of cocaine. In the purely internal treatment, in all cases, the dose should not exceed three quarters of a grain of cocaine in twenty-four hours. The following is prescribed: Cocaine hydrochloride, three quarters of a grain; distilled water, 450 grains. A teaspoonful is to be taken every half-hour during the paroxysms. Cherry-laurel water is usually employed with morphine or cocaine. Fonsagrives sometimes uses it alone and sometimes in the following form: White looch, three ounces and a half; cherry-laurel water, seventy-five grains. Cherry-laurel water is especially indicated in gastralgia with vomiting. Germain Sée has studied cannabis indica and gives the following as his ordinary formula: Extract of cannabis indica, three quarters of a grain; gum julep, three ounces. A tablespoonful is to be taken every hour during the paroxysms. Its action should be watched. Finally, says the author, cundurango is a very good anodyne, especially in cancerous gastralgia. Its action is unfortunately inconstant, because the quality of the bark is so often inferior. A hundred and fifty grains of the bark are steeped in six ounces of boiling water for a quarter of an hour, and a tablespoonful is to be taken at a time.

These are the principal internal remedies employed in gastralgia. Simpler means, such as chamomile tea and coca, may also be mentioned. In cases of excess of hydrochloric acid alkalines are the real specifics. In the gastric paroxysms of ataxia salicylate of sodium should be especially mentioned. The dose is from thirty to forty-five grains a day.

A French View of the Proprieties of a Physician's Life.

—In a *feuilleton* published in a recent number of the *Gazette de gynécologie* Dr. Grellety writes of these matters in the form of questions and answers as follows:

Should the physician go into society? Aside from his obligations to his family or to his friends, certain anniversaries and solemn occasions, such as a marriage among his friends, it is to his interest not to squander his time, but to remain in a sort of obscurity and to allow people to think that he is entirely absorbed by his occupations. The most fashionable physicians have the reputation of being unapproachable and nearly impossible to meet; for them, the result is a real prestige. It is to his advantage to appear rarely, and for a brief time only, in social circles, in beer gardens, and all places of social gathering. One is somewhat lost in large cities; there bachelors are numerous, and the *salons* of the fashionable world supply the place of the family to those who have no home. In this case a certain latitude is admissible. But it is not the same in the small pro-

vincial towns, where all classes of society meet in the same room, dirty and smoky, where one takes refreshments of an inferior quality; where loud discussions are carried on without reserve; where many hours are lost in play, etc. The popularity that one finds every day among tiresome grocers, retired military men, cattle dealers, and people of low degree who are playing with the same pack of cards, is not a good standard; too much familiarity is the consequence of this promiscuous mixing, and one leaves his laurels behind.

Should the physician marry early? Yes, in the provinces and small places it is almost indispensable; it is necessary in order to be admitted into families and to prevent gossip. It is also well because the blending of character is better, and the sharp angles are more easily rounded at an age when habits and time have not rendered one set in one's ways. It is not well, however, to accept blindly the first young girl that the inevitable matchmaker presents. With ill-timed haste one runs the risk of being insufficiently informed regarding the health, the honor, the education, and the surroundings of the young person who is always represented as having all these qualities. Incongruous and strange unions are often seen. Is it not extraordinary to see young men united to women who are wretched, ailing, and ill-bred, all collar bone and chin bone, when their studies should have taught them the dangers of a defective anatomy and of a prematurely shattered constitution? A physician should always preach by example, his family also, and present the appearance of exuberant health. Physicians who live in large cities have greater opportunities for waiting and making a judicious choice, where all that one fancies in such a case may be found united. Meanwhile the author advises them to cross the Rubicon as soon as possible, and to have children without delay, in order to supervise their education to the end.

If a physician is successful, he should be desirous to see his son succeed him, so that he may avoid the difficulties that beset his father at the outset of his career.

But bear in mind to what age this will bring you, says the author, before your son is capable of succeeding you. No matter how little time you have lost, the better part of life (and it is short in a profession) will have passed. It is not ordered that your infirmities will allow you to remain on the field until you can leave things in the hands of your progeny. Paternal direction is still more necessary in modest homes where the disappearance of the father always shows deterioration. His counsels and talents, however modest they may be, have a great weight in the choice of a career and the success which should crown this decision. Marry, then, about the age of thirty, and arrange to have two or three children (that will be sufficient) as soon as possible. The author advises the physician to marry a pretty woman without vanity, an intelligent woman, who does not make too great a display of what she knows, and, above all, an amiable one; but, as this seems too much at once, he advises him to love her deeply, as that will make up for anything that is wanting.

Should a physician be present at the funeral of a patient? Unless it is that of a relative or a friend, it is better for him to remain away. His presence might recall painful recollections and provoke a certain bitterness. Besides, his presence might call up by anticipation the prospect of the settlement of his bill, which would not be agreeable at a moment when the relatives of the deceased were making sacrifices in order to have an appropriate funeral.

Should the physician pay his visits on a velocipede? A certain number of rural practitioners have made use of this mode of locomotion; but one must be young to enjoy such a way of traveling and to wear the appropriate costume that it demands. It is very difficult for one who is active at it not to be more or

less covered with mud or dust after having traveled a certain distance. Inevitably, he arrives breathless, with disordered clothing and a red face, and in this condition he can not impress his patients. This is not the case with country people, who attach little importance to dress; but fashionable patients and refined women would be offended at such an appearance. That our country brethren have discarded the white tie and fashionable hat is as it should be, but they should not become too negligent, too plebeian; they should always preserve their dignity and the decorous conduct consistent with their character and profession.

Should a physician be intimate with the pharmacist? The author thinks decidedly not; at least from the point of view of their outside relations. He does not find anything derogatory in the friendship of years, the attachment in which there is a companionship of ideas, or in intellectual affinities of long standing. The occasions when a physician can fraternize, can exchange confidences with an intelligent man, with whom he has often traveled the same dusty road, suffered the same struggles, and shared the same enthusiasms and deceptions are rare enough and are not to be disdained. The principal thing is that one's sympathies should not be too ostentatious, so that the public, which is so inclined to malevolence, can not attribute to interested motives these relations. It is very easy for the ungrateful public to declare that the pharmacist is the accomplice of the doctor.

The author thinks that the physician should guard his reputation with jealous care, that he should do all in his power to prevent people from looking upon him as a man of unsteady mind, a man without judgment, not serious, a gourmand, a drunkard, immoral, a gambler, violent, coarse, rapacious, and uncharitable.

Mothers, says the author, who have marriageable daughters, should be able to hold him up as the ideal husband, as a model and example for all.

What we are Coming to in Scientific Surgery.—A clever writer who signs himself C. F. C. contributes to the *Boston Medical and Surgical Journal* for August 23d an account of the proceedings that may be imagined to occur at a painfully scientific surgical clinic. A man presents himself with an ingrowing toe nail, whereupon the surgeon, after glancing at the toe, informs the students that formerly such a case would at once have been submitted to local treatment without further ado, and he admits that the prospect of obtaining a good result would have been fair. Now, however, he says, that we have learned the general interdependence of the different organs of the body, we feel that a thoroughly scientific treatment demands an examination of these different organs by specialists, in order that any conditions likely to be ætiological factors in the case may be detected. Thereupon the patient is taken in charge by an attendant who conducts him to various rooms in succession and returns with the reports of the different specialists. The ophthalmologist reports that the patient is myopic, and adds: "As I recall a case where a similar visual defect was the cause of injury to the great toe in a person who 'stubbed' it against a curbstone, I have ordered appropriate lenses to correct the difficulty as a prophylactic against the occurrence of the disease. It is essential, however, that this treatment should be supplemented by wearing a loosely fitting shoe." The otologist reports that he found no defect of hearing, but says that, as the patient's trouble may have arisen from want of suitable support to the feet, he has thought it best to shorten the stapes leather two holes. The rhinologist puts the case down as one of "nasal tone ail." Wishing to bring about a radical change in the parts, he says, he has removed with the curette all ade-

noid growths, together with the adherent mucous membrane, from the cavities, and packed them all with aseptic gauze, which is to be removed if the patient wishes to sneeze. In the department of abdominal surgery the man was made the subject of a consultation by Dr. A., Dr. B., and Dr. C. Inasmuch as the history showed that the patient's mother had while living lost a set of false teeth, Dr. A., reasoning that tooth and nail are generally associated in action, is inclined to think the set may have been swallowed unconsciously and remained in the patient's stomach. Of course, he advises an operation. Dr. B., on the strength of Julius Caesar's statement that "Gallia est omnis divisa in partes tres," suggests that one of them may have wandered down to the great toe, and advises an exploratory incision into the gall-bladder to ascertain if either part is missing. He further remarks that the "Gallic boot of love," cited by Dr. O. W. Holmes, seems to indicate a tendency of the gall to the foot. Dr. C. concurs in both these opinions, and on general principles he advises the removal of the appendix; but, inasmuch as the patient states that that has already been done, and that he has his appendix in a bottle at home, and is prepared to fetch it if required, it is deemed advisable to await further developments. The gynecologist reports that palpation reveals no abnormal condition of the uterus or its appendages, but, inasmuch as a medical student has called his attention to the facts that the patient wears trousers and has well-developed male generative organs, it is doubtful if the case is a proper one for his department. The gentleman in charge of the department of genito-urinary diseases reports that the organs are apparently healthy, but suggests that it is not impossible that the patient may have passed a vesical calculus which has fallen upon the great toe and injured it. The report of the neurologist completes the examination. That gentleman finds that there is deficient innervation of the man's lower limbs. In particular, there are two well-marked areas of impaired sensibility and partial anæsthesia located in the gluteal regions beneath the tuberosities of the ischia. As the history sent with the man made no mention of this, the neurologist had questioned him as to how long the condition had existed, but had received only unsatisfactory replies—merely to the effect that he had "sat so long upon those d—d hard benches that his — got numb." He recommends a rubber cushion with two holes, and that the case be kept under observation. After all this the surgeon announces that he is about to send the patient to the chiropodist around the corner, with instructions to have the toe cleansed and a piece of sheet lead inserted under the roughened edge of the nail. Advising the gentlemen of the class not to lose the opportunity of witnessing this procedure, he bids them good morning.

Rhus Poisoning.—In the June number of the *China Medical Missionary Journal* there is a note by Dr. James H. McCartney on Dermatitis Venenata. He has in mind particularly the poisoning produced by the Chinese varnish *tsih*, which, he says, is very similar to that caused by *Rhus toxicodendron*. He has found that some persons are so sensitive to the poisonous action of this varnish that they have to avoid going near any freshly varnished article for some days, and some can not pass such an article on the windward side, even at a great distance, without being poisoned. He thinks he has noticed that thin-skinned persons of the blond type suffer most, while dark-skinned persons are little if at all susceptible. It is seldom that the painters who work daily with *tsih*, sometimes having their hands completely covered with it, are affected with poisoning, and those who have had an attack can always tell when they are going to have another by a peculiar sensation in the skin. The author has seen about ten cases, and in all of them

the symptoms have been the same and the treatment has been equally efficacious. The attack is always ushered in by severe headache, a rise of temperature, and intense itching and burning of the affected parts, generally accompanied with constipation and loss of appetite. Within a few hours the poisoned parts become inflamed and begin to swell. Different parts of the body may become infected by the patient's scratching them with his poisoned hands. All cases may be cut short by means of local treatment if it is employed early enough, when the itching is first noticed. A ten-per cent. solution of carbolic acid applied frequently at this time will abort an ordinary attack in six hours. All the internal medicine that is called for is a saline cathartic and something to control the fever and headache. The author adds that he has found a strong solution of acetate of lead [applied locally, we presume] very efficacious.

Apocynum Cannabinum in the Treatment of Diseases of the Heart.—The *Journal des praticiens* for August 14th contains an abstract of an article by Dr. J. Glinski, published in *Vratch*, from which it appears that the author has satisfied himself by experiments on animals that *Apocynum cannabinum* contains an active cardiac tonic. Moreover, being himself affected with hypertrophy of the left ventricle, with dilatation, a mitral murmur, etc., he took fifteen drops of the fluid extract daily in three doses. All the functional symptoms were ameliorated, and he made further trials in other cases of compensatory troubles, and obtained the same success. He concludes that the root of *Apocynum cannabinum* has properties similar to those of digitalis, and is free from the cumulative action of that drug. In cases of dilatation of the heart it diminishes the area of dullness, increases the secretion of urine, allays palpitation, and favors secretion. No secondary effects are observed after its administration further than an augmentation of the arterial pulsations. It may be used in decoction, tincture, or fluid extract. It is a drug, says the author, that ought to be studied anew with regard to its action on the heart.

The Treatment of Epithelioma with Pyoctanin.—In the *Revue internationale de médecine et de chirurgie pratiques* for August 10th there is an abstract of an article by M. Dujardin, published in the *Journal des sciences médicales de Lille* for June 16th, giving an account of a case of superficial ulcerative epithelioma situated on the eyelid near the inner angle of the eye. As the patient declined to have the affected part removed, the author resorted to cauterization with a one-to-twenty watery solution of Ueberck's blue pyoctanin, applied every second day. The treatment was kept up for several weeks without any apparent benefit, when the diseased part became affected with swelling accompanied with erysipelatous redness and sharp pains. Under the influence of emollient applications the inflammation gradually disappeared, and then it was found that the epithelioma had healed entirely.

The Students and the Tailors of Austria-Hungary.—The *Union médicale* states that the Tailors' Union of Gratz, in Styria, has addressed to the rector magnificus of the University a request that in future no student shall be accorded the diploma of doctor unless he can show evidence that he has paid his tailor entirely.

The Mississippi Valley Medical Association.—The twentieth annual meeting will be held in Hot Springs, Ark., on November 20th, 21st, 22d, and 23d. The secretary announces that many valuable papers have been promised.

A Statue of the Late Professor Claude Bernard is to be inaugurated in Lyons on the 26th of October, as we learn from the *Union médicale*.

Original Communications.

THE GASTROGRAPH:

A NEW MEANS OF
DETERMINING THE MECHANICAL ACTION OF THE STOMACH.*

By MAX EINHORN, M. D.

UNDER mechanical action of the stomach one understands the changes which substances there undergo by the existing motions of this organ.

At the end of the last century, when physiology began to develop, several theories of the physiological function of the stomach took their origin. The oldest of these theories and the one which enjoyed most recognition was that of trituration, the food in the stomach being broken into small particles and changed into chyme. In the stomach of birds—where glass beads experimentally introduced were found, as you all know, broken into small fragments—one saw the proof for the correctness of the mechanical theory. Even then, however, before the chemical qualities of the gastric juice were known, two other theories had been constructed—the fermentative and the chemical. The advocates of the fermentative theory explained the digestive act as a kind of decomposition of the food by a putrid-like process. The chemists, however, looked for the active principle in the saliva and in the gastric juice.

Haller† believed that the food only became softened and diluted by the gastric juice, the process of maceration being aided and accelerated by the warmth, the putrefactive principle, and the slight but continuous motions to which the aliments are subjected.

Réaumur and Spallanzani‡ endeavored to bring light upon this subject by way of ingenious experiments. They had animals swallow wooden capsules filled with food (meat), the capsules having several holes so as to admit the gastric juice into them. After a few hours the animals were killed, the stomach opened, and the capsules obtained; they were always found empty—*i. e.*, the meat had been digested. This experiment unmistakably showed the important part of the gastric juice for digestion. The other theories seemed thus to be overthrown, and the chemical alone to be the right one.

The mechanical action of the stomach from that time on until the end of the first quarter of this century was considered of hardly any value.

Thus Magendie* describes the act of gastric digestion in the following way:

“The aliment remains in the stomach generally about one hour before it undergoes any perceptible change, but what arises from its mixture with the fluids which are constantly poured into this organ. *During this time the stom-*

ach remains uniformly distended; at last the pyloric portion contracts itself, through its whole extent, especially toward the point nearest to the cardiac portion, during which the aliments are forced back. From this time we find in the pyloric portion nothing but chyme mixed with a very small portion of aliment unchanged.”

Johannes Müller* shares the same view, as can be seen from his following remarks:

“Only irritants applied directly to the stomach cause an immediate contraction. It is evident how mistaken those are who count much on the motions of the stomach for the dividing of the food into small particles. The peristaltic motions of the stomach I have never seen clearly. I therefore describe them after Magendie.”

Richerand† emphasizes that the principal part of digestion is not performed in the stomach: “L'estomac a de tout temps été regardé comme le principal organe de la digestion; il n'y joue cependant qu'un rôle préparatoire et secondaire.”

This author utilizes all the three theories in explaining the function of the stomach. He expresses himself as follows:‡

“The soft and peristaltic action of the muscular fibers of the stomach exercises a slight pressure on the alimentary substances and triturates them finely. At the same time the gastric fluids soften and macerate the aliments before dissolving them. One might say that the process of gastric digestion is at the same time *chemical, mechanical, and vital*. In this way the authors of the different theories of the gastric mechanism have been wrong only inasmuch as they attributed this latter to *one* cause—namely, the warmth, the putrefaction, the trituration, the maceration, the gastric juices—instead of explaining it as an *act of all these causes united*.”

A new era in the physiology of gastric digestion begins with Beaumont.* His classical experiments on the Canadian St. Martin with the gastric fistula, executed during a period of several years, have greatly advanced all those important questions referring to the function of the stomach and remained undisputed to date. Beaumont knew the chemical properties of the gastric juice and gave a detailed description, from his own observations made on the Canadian, of the motions of the stomach and of the food. To illustrate Beaumont's views, we cite the following sentences|| from his well-known book *Experimental Observations on the Gastric Juice*:

“That chymification is effected by the *solvent* action of the gastric juice, aided by the *motions* of the stomach, and the natural warmth of the system, not a doubt can remain in the mind of any person who has had an opportunity to observe its effects on alimentary substances.

* Read before the Medical Society of the County of New York, May 28, 1894.

† Haller. *Elementa physiologiæ*, Bd. vi, Bernæ, 1764.

‡ Spallanzani. *Versuche über das Verdauungsgeschäft*, Abhandlung VI.

* F. Magendie. *A Summary of Physiology*, Baltimore, 1824, p. 228.

* J. Müller. *Handbuch der Physiologie des Menschen*, 1837–1840, p. 483.

† Richerand. *Nouveaux élémens de physiologie*, Paris, 1825, t. i.

‡ Richerand. *Loc. cit.*, p. 234.

* W. Beaumont. *Experimental Observations on the Gastric Juice*. Combe's Edition.

|| Beaumont. *Loc. cit.*, p. 101.

" . . . These motions not only produce a constant disturbance, or churning of the contents of this organ, but they compel them at the same time to revolve around the interior from point to point, and from one extremity to the other. In addition to these motions there is a constant agitation of the stomach produced by the respiratory muscles." Page 102: "While these revolutions of the contents of the stomach are progressing, the trituration or agitation is also going on. There is a perfect admixture of the whole ingesta."

The movements of the food, according to Beaumont, take place in the following way:

"The ordinary course and direction of the revolutions of the food are, first, after passing the œsophageal ring, from right to left, along the small arch, thence through the large curvature from left to right. The bolus as it enters the cardia turns to the left, passes the aperture, descends into the splenic extremity, and follows the great curvature toward the pyloric end. It then returns in the course of the smaller curvature, and makes its appearance again at the aperture in its descent into the great curvature to perform similar revolutions. These revolutions are completed in from one to three minutes.

. . . . The bulb of the thermometer, which has been frequently introduced during chymification, invariably indicates the same movement. They are slower at first than after chymification has considerably advanced."

W. Brinton* corroborated most of these facts by further experiments on animals and explained the admixture of the food in the stomach by the two existing different currents—one in the center, the other in the periphery of this organ.

Blondlot† takes the same view as Richerand, laying, however, more stress on the mechanical action of the stomach, as may be seen from the following extracts:

"The stomach, as a whole, has to fulfill a triple rôle: Firstly (the most essential), to secrete the chymifying fluids; secondly, to serve as a receptacle for food during their chymification; thirdly, to act dynamically—namely, to mix the food and to expel it in the state of chyme. . . .

"Finally, the last quality attributed to the stomach is that of exercising a mechanical action on the aliments by means of the peristaltic movement with which it is provided."

M. Schiff,‡ on the contrary, attributes very little importance to the motions of the stomach. He says:

"Formerly much importance was attributed to the mechanical phenomena of the gastric digestion. By means of them one explained the maceration and even the dissolution of the aliments, and constructed strange hypotheses relating to the muscular force of the stomach. One even expressed in figures the supposed "enormous force" of the spiral fibers of this organ. Spallanzani and Réaumur, however,

had already produced artificial digestions, and had proved by their experiments that the aliment need not be in immediate contact with the stomach wall in order to become liquefied and digested, . . . and we are entitled to say that, as a whole, in all mammals—including man—it is the gastric juice alone which performs the gastric digestion."

The later physiologists have occupied themselves but very little with the subject in question. In this way one finds in most text-books either the description given by Beaumont or Schiff's opinion.

Whereas the experiments referring to the mechanical action of the stomach were left on the shelf, numerous investigations had been made in regard to the removal of the contents from the stomach into the intestines. This point



FIG. 1.—The ball apparatus of the gastrograph. (Natural size.)

alone during the last twenty years took the foremost interest, the more so since one had learned to utilize it in pathological conditions. According to Leube,* the stomach normally is empty seven hours after a substantial meal. Wherever this is not the case one speaks of a "faulty motion" of the stomach. One became accustomed to use the term "motility" for the transportation of food from the stomach into the intestines, leaving the mechanical action of the stomach without any consideration whatever. The transportation faculty of the stomach considerably gained in importance, since it has been proved, by experiments made on dogs by Mering,† Moritz,‡ and Hirsch,§ that the absorption of liquids through the stomach wall hardly amounts to anything.

Kussmaul, the founder of modern stomach pathology, has written a very important paper touching our subject. His article on Peristaltic Restlessness of the Stomach forms a chapter of the pathology of the mechanical as well as of the transporting action of the stomach. We cite from Kussmaul|| the following sentences:

"The peristaltic motions of the stomach in man, as a rule, remain concealed. Only under favorable conditions, if the abdominal walls are very thin and the stomach either situated very low or dilated, they become visible. But even then not always. On the other hand, in some persons we see the peristaltic motion in a picture, which I designate as 'peristaltic restlessness.' Here the peristaltic action is remarkably lively; the mountain waves which move over the stomach are large and powerful. Rest appears only

* Leube. *Die Krankheiten des Magens und Darms.*

† Mering. *Münchener med. Wochenschrift*, Sept. 19, 1893, p. 721.

‡ Moritz. *Ibid.*

§ Hirsch. *Ctrbl. für klin. Med.*, 1893, No. 18.

|| A. Kussmaul. *Volkmann's Sammlung klinischer Vorträge*, No. 181, Juni, 1880, p. 1637.

* W. Brinton. Contributions to the Physiology of the Alimentary Canal. *The London Medical Gazette*, 1849, viii, p. 1025.

† Blondlot. *Traité analytique de la digestion*, Paris, 1843, pp. 187-189.

‡ M. Schiff. *Physiologie de la digestion*, 1867, t. i, p. 354.

when the stomach is empty from food and contains only air, or not even then."

In most of these patients there is a dilated stomach, with hypertrophied muscularis, in consequence of a stenosis either of the pylorus or of the duodenum. The peristaltic restlessness is, then, the result of a visible mechanical resistance; but it is also met with in cases without stenosis as the consequence of an increased irritability of the peristaltic nerve apparatus of the stomach. At another place in his article Kussmaul says: "The nervous peristaltic restlessness of the stomach is perhaps more frequent than it appears and not necessarily associated with dilatation. One merely can not perceive the motions of the stomach having its normal size and position. Even if the stomach is situated low, the motions can only be recognized in people with thin and relaxed abdominal walls."

Regarding the effect of the muscles of the stomach on the digestive process, Leube * expresses himself as follows:

"If one persuades himself of the effect which shaking produces in digestive fluids in test tubes, dissolving quickly substances contained therein, he will very easily conceive the importance of the gastric motions in this respect. By the contractions of the stomach wall the chyme apparently comes in contact with it at different places and becomes saturated with its juice. Likewise the contact of gastric contents with the stomach wall is fit to mechanically produce secretion anew."

C. A. Ewald † very recently has made researches upon the motions of the chyme in the stomach, resembling those of Beaumont, on a patient with gastric fistula. We cite from Ewald the following: "I have gained the impression that the concussion of the stomach contents—which may be compared with the shaking of a sieve in the mill—serves as a very important factor in the mechanical admixture and the dissolution of the food stuffs."

In summing up the above-mentioned literature, it is evident that the stomach shows peristaltic motions and that they may be pathologically increased. There is, however, a discordance of opinion referring to the part which the mechanical action of the stomach plays in the churning of the food. This point has been least worked upon.

It appeared to me of interest to make investigations on the subject in question. For several years I have been looking for some methods which would allow us to judge approximately of the mechanical action of the stomach. All usual methods of examining the motor faculty of the stomach can not be utilized for our object in view, for they all only consider the transportation of the contents, but not the motor work done by the stomach itself all the time. As the motions of the stomach necessarily cause a shaking of its contents, I tried to introduce into this organ separately two emulsifiable substances, and to withdraw them half an hour later by means of the tube; the idea was that the shaking would produce an emulsion. The tests, however, showed that generally there was no emulsion. At any rate, these experiments did not permit of any estimate of

the mechanical action and were thus unfit for our purpose. Later on I tried to judge the contractions of the stomach by means of the stomach bucket; * the latter being within the stomach, one can observe how far, with what force, and at what intervals the thread on which the bucket hangs is pulled farther in. The thread alone affords too few supporting points to be moved by the contractions of the œsophagus. In this way every traction of the thread hints at a further locomotion of the bucket in the stomach. This method, however, is deficient for the reason that the motions of the bucket in the stomach will not be recognized as soon as a longer piece of thread has reached this organ.

Having the fact in view that, by the active (peristaltic) and passive (transmitted respiratory and pulsatory) motions of the stomach, there occurs a moving and at the same time shaking of the contents—which is the expression of the mechanical action—I have constructed an apparatus which indicates every motion to which it may be subjected. The whole apparatus comprises: 1. The ball (being the principal part). 2. A few electric cells. 3. The ticker.

The ball (Fig. 1) consists of two hollow metallic hemispheres (a), which are screwed together; within it is lodged and attached to the upper hemisphere, but perfectly insu-

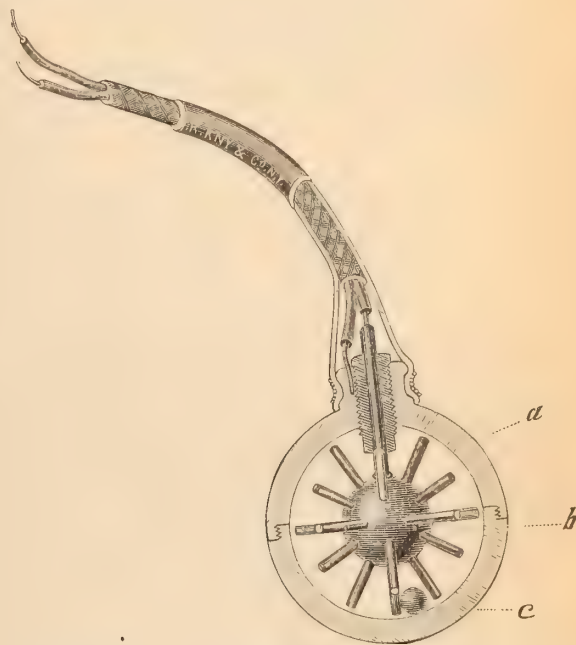


FIG. 2.—Cross section of the ball, showing its interior construction. (Enlarged three and a half times.) a, the two hemispheres; b, the spiked ball; c, the platinum ball.

lated from the same at the attachment, another ball provided with spikes (b) radiating in all directions, but not touching the inside walls of the hemispheres; another very small platinum ball (c) lies within the large ball and can freely move in all directions, knocking at the spikes. (See Fig. 2.) Two insulated wires—one connected with the hollow ball, the other with the spiked ball—are incased in a very fine, thin rubber tube, forming the cable, and separate at the end into two branches, which must be attached to an electric battery. As soon as the platinum ball touches one of the spikes an electric circuit is made; as soon, how-

* Leube. *Die Krankheiten des Magens und Darms*, von Ziemssen, Bd. vii, p. 19.

† C. A. Ewald. *Zeitschrift f. klin. Medicin*, Bd. xx, p. 547.

* Max Einhorn. *Medical Record*, July 19, 1890.

ever, as the platinum ball moves a little aside and does not touch the spike any more the current is broken. At each motion of the ball apparatus a rolling of the little platinum ball takes place and the electric current is either closed or broken. When the apparatus is at rest there is no change in the current. In connecting the "ticker" with the bat-

From numerous tests which I have made, it appears with certainty that the gastrograph works in the desired manner—*i. e.*, it indicates the motions of the ball and can thus be utilized for the valuation of the motions of the stomach or the mechanical action of this organ.

Method.—The ball is dipped in lukewarm water, intro-

duced into the pharynx of the patient, and the latter told to swallow. The patient may drink some water. After a short while (from a minute to a minute and a half) the ball reaches the stomach. It is advisable to let the ball slip far down into the stomach, so that the distance from the mouth to the ball (length of cable) is about fifty centimetres. The cable is then connected with the battery and the indicator and the latter set agoing for three minutes (Fig. 3). The patient during this procedure sits quietly on a comfortable chair. At the end of three minutes the indicator is checked, the cable disconnected from the battery, and the ball withdrawn from the stomach. When at the introitus œsophagi, it is necessary, here in the same way as when using the bucket* or the deglutable electrode, to have the patient swallow, and to utilize the moment, when the larynx goes upward and forward, to withdraw the ball without using any force whatever.

The strip of paper which has rolled off from the reel is cut off and the marks are then perused. The black line shows when the cur-



FIG. 3.—A patient undergoing examination with the gastrograph.

rent was closed, the empty places when there was no current. As an instance I give a few gastrograms (reduced ten times) (Fig. 4). For my experiments I have found it practical to enter the marks of the strips into a copy book. This was done in the following way: Each line was divided into three equal spaces—each space corresponding to one minute—each space (or minute) into ten divisions, and the "breaks" and "makes" of the current marked with dots at the corresponding place. In this way

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This apparatus may therefore be designated as "Gastrokinesograph," or, shorter, "Gastrograph."*

* The gastrograph may be obtained of Richard Kny & Co., 17 Park Place.

* Max Einhorn. *Medical Record*, July 19, 1890.

E. C. A., Table II, Case VI, 8.

Dr. A. R., Table I, 2.

II. R., Table II, Case II, 2.

the number of current changes can very easily be looked over and comparisons made.

(A) *Physiological*.—I have made several tests with the gastrograph on healthy people and describe them in Table I.

These experiments show that the stomach is not so inactive mechanically as several authors believed, and that it churns the contents almost continuously with slight periodical interruptions.

The number of motions for three minutes averaged from four to forty-one.

When fasting, the mechanical action of the stomach seems to be much less than after meals. One hour after a light breakfast the gastrograph marked thirty-three in the case of Dr. A. R.

My experiments on healthy people are not numerous enough and will have to be largely supplemented.

(B) *Pathological*.—Most patients had been examined with the gastrograph either when fasting or from an hour to an hour and a half after the test breakfast, taking about half a glassful of water when swallowing the ball; many of the patients have been examined under both conditions on different days. Some of them have been subjected to a very great number of tests, in order to ascertain whether there is a certain constancy in the results. The whole number of patients examined was twenty-seven, the number of tests sixty-four.

Table II shows the tracings we obtained in our patients with the gastrograph.

In perusing the gastrograms obtained from my patients and comparing them with those obtained from healthy people, one sees that there are three different classes among them. One corresponds to the normal; the second class is marked with too much mechanical action, the number of dots being greatly increased; the third class shows a remarkable slowness and laziness of the me-

TABLE I.—GASTROGRAMS OF HEALTHY INDIVIDUALS.

No.	Name.	Date.	Condition.	1.					2.					3 (minutes).					Number of dots.					
				1.	3.	5.	7.	9.	11.	13.	15.	17.	19.	21.	23.	25.	27.	29.						
1.	Dr. A. R.	Jan. 10, 1894.	When fasting + one glassful of water.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	14 + 4 + 5 = 23.
2.	Dr. A. R.	Mar. 28, 1894.	One hour after the test breakfast + $\frac{1}{2}$ a glassful of water.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11 + 16 + 6 = 33.
3.	Carl G.	Feb. 23, 1894.	When fasting, without any water.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1 + 1 + 2 = 4.
4.	Carl G.	Feb. 23, 1894.	When fasting + $\frac{1}{2}$ a glassful of water.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1 + 2 + 2 = 5.
5.	Carl G.	Jan. 28, 1894.	An hour and a quarter after a light breakfast, without any water.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12 + 17 + 12 = 41.
6.	Carl G.	Jan. 12, 1894.	Two hours after breakfast + 1 glassful of water.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3 + 6 + 7 = 16.
7.	Carl G.	Feb. 25, 1894.	An hour and three quarters after breakfast + $\frac{1}{2}$ a glassful of water.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2 + 2 + 7 = 11.
8.	Carl G.	Feb. 25, 1894.	Do. (Further 3 minutes.)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6 + 4 + 4 = 14.

FIG. 4.

TABLE II (Continued).—GASTROGRAMS OF PATIENTS WITH STOMACH TROUBLES.

No.	Name.	Disease.	Date.	Condition.	1.										2.				3 (minutes).				Number of dots.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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XIV, 20.	Adolph S.	Gastro-succor-rhea continua chron.; hyper-aciditas; hyperkinesia.	Mar. 8, 1894.	When fasting + $\frac{1}{4}$ a glassful of water.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															

* In the beginning of treatment there was slight stagnation of food.

+ Patient is much better, and there is no more stagnation of food.

TABLE II (Continued).—GASTROGRAMS OF PATIENTS WITH STOMACH TROUBLES.

No.	Name.	Disease.	Date.	Condition.	1.										2.					3 (minutes).					Number of dots.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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KIX, 41.	Richard L.	Gastritis gland. chron.	Mar. 28, 1894.	Two hours after the test breakfast + $\frac{1}{4}$ a glassful of water.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				

* Patient felt better.

chanical function, the number of dots being reduced to 4, 3, or 0.

I might briefly state that in patient U. (xii, 15) with dilatation of the stomach and stenosis of the pylorus the number of dots was the largest.

Although these investigations are as yet not finished, they show, however, that the gastrograph will enable us to widen our knowledge of the mechanical function of the stomach. Moreover, it will probably prove of value as a new diagnostic means in some pathological conditions of this organ.

107 EAST SIXTY-FIFTH STREET.

A NEW AND DISTINGUISHING SIGN OF LATENT ANEURYSM OF THE AORTA.*

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WE occasionally find in practice cases of aneurysm of the aorta where the recognized signs of aneurysm are absent and where a positive diagnosis of the condition will be impossible. In most cases in the earlier stages there is an absence of dullness on percussion, pulsation, and aneurysmal bruit, and it is only later that the recognized signs are apparent. In certain cases the physical signs remain latent for an indefinite period, and it is only through the occurrence of the pressure symptoms that a suspicion of such a condition will arise. Even then there can be no positive diagnosis, as other thoracic tumors may produce the same disturbing symptoms. It will not be necessary in this association to dwell upon the importance of such a differential diagnosis and its bearing both upon prognosis and treatment.

In the study of a number of cases of thoracic aneurysm I believe that I have recognized a sign which will corroborate the diagnosis and which will enable us to give a positive opinion in all such cases.

The sign to which I make reference is the presence of a systolic sound or thud in the brachial artery, synchronous with the systole of the heart. This sound is sometimes accompanied by an arterial murmur. It may also be heard in connection with the aneurysmal murmur which has been conducted through the artery. When this sound can be heard and aortic regurgitation can be excluded, I claim that a positive diagnosis of aneurysm can be made even in the absence of all other signs or symptoms.

I would explain this sign in the following manner:

Under normal conditions the artery is constantly filled with blood, and the walls are subject to a certain amount of tension, the tension being greatest at the acme of the systole of the artery. The blood is being constantly forced onward, first, through the propelling force of the heart, and secondly, through the contractile power of the arterial walls. There is a steady pressure in the blood column, and

the artery is constantly filled with blood. If, however, a physical condition should exist which would allow a backward as well as a forward emptying of the artery during the arterial systole, the arterial walls would rapidly collapse and the artery would be found only partially filled at the time of the succeeding cardiac systole. When the column of blood is forced suddenly by the ventricular contraction through the artery with its relaxed walls, the walls of the artery are brought suddenly to a high degree of tension, and the sudden vibration of the walls in this condition produces the sound in the artery. This condition exists whenever there is a leak in the aortic valves, and whenever there is a limited dilatation in the aorta, if other conditions are normal.

Skoda, as early as 1869, drew attention to this brachial sound as one of the most significant signs of aortic regurgitation, and I would add that it is equally conclusive of aneurysm of the aorta.

In pure aortic regurgitation it is always present. In aortic regurgitation complicated with other valve lesions or a weakened condition of the heart it may be absent. In aortic obstruction and regurgitation the aorta is imperfectly filled, also where mitral insufficiency is present in conjunction with aortic regurgitation the amount of blood delivered by the left ventricle is insufficient to produce the arterial vibration. This is also true when the left ventricle has become enfeebled from any cause.

The same factors which are necessary to produce it in aortic regurgitation are equally necessary in aneurysm. A forcible ventricular contraction, a free and unobstructed flow of blood through the aorta are absolutely necessary for its production. In case of dilatation beyond the arch of the aorta I would explain the sign through the siphon action which would draw the blood from the brachial artery, produced by the flow of blood into the dilated portion of the aorta. The arm must also be extended to allow the free, unimpeded vibration of the brachial artery.

As the Corrigan or collapsing pulse is dependent upon the same physical conditions as those producing the arterial sound, it will be found coexistent with it; the sound, however, is at times evident when the character of this pulse is not well marked and when its collapsing quality can only be found by the sphygmograph.

In the course of an aneurysm we will find the sound to disappear whenever the ventricular contraction has been weakened, but it will again reappear if the power of the heart can be strengthened.

I have called this a new sign of aortic aneurysm, for I can find no mention of it in the old English, French, or German classics, and modern writers, so far as my reading has gone, do not seem to have observed it.

I report six cases of aneurysm in which this arm sign could be heard, and I might have added more cases—one of subclavicular aneurysm and two of aortic aneurysm—but in these three cases the aneurysm existed in conjunction with an aortic regurgitation, and hence would not have been characteristic. In the cases reported the aortic valves were healthy, so far as this can be said through physical examination. In two cases the diagnosis of aneu-

* Read before the American Climatological Society at its eleventh annual meeting.

rysm was made from this sign alone four months prior to the appearance of the recognized physical signs.

CASE I.—J. S., aged fifty-two years, a cattleman, complained in June, 1892, of a catching of the breath and a slight smothering on exertion. He referred his trouble to the upper sternum.

Examination.—Heart sounds were normal, percussion sound unchanged over chest. An accentuation of the heart sounds was heard over the second cartilage, extending to the left. There was harshness of the inspiratory sound in the upper sternal region and inner border of the infraclavicular region. There was no special pain in the chest. There was no pulsation. The pupils were normal and the radial pulses equal and free. A systolic sound like a strong heart sound was heard in both brachial arteries when the arm was extended and the ear applied to the artery. The diagnosis of aneurysm of the aorta was made. He was given iodide of potassium and a certain quietude of life was prescribed.

In November, 1893, the patient again presented himself. He complained of shortness of breath on exertion, with fugitive pains radiating from the sternum through the chest toward the suprascapular region. On examination a marked dullness was found over the upper sternum at the second cartilage, the dullness extending to the left; pulsation was evident in the dull area. On auscultation a marked inspiratory stridor was evident in the upper sternal and left infraclavicular regions. A loud systolic bruit was heard in these regions and behind. The heart sounds were normal. The pulse was unequal in the two arms; it was much weaker in the left radial. A systolic sound was heard over the right brachial artery.

February 24, 1894.—Patient came again; as he is living in the country he can not be seen often. The pains in the chest have been very severe at times. They come and go according to the degree of quietude. After a fatiguing exertion he stated that they were almost unbearable. The inspiratory stridor over the upper sternum is very great; this is also heard behind, in the interscapular region. The systolic murmur over the upper sternal and left infraclavicular regions is very loud; this is also heard behind. A marked pulsation exists under the second left cartilage, the space giving a dull percussion sound. The left radial pulse is much weaker than the right. A systolic sound in the right brachial artery. The heart sounds are normal.

I have not heard from the patient since that date.

CASE II.—Mrs. R. T., aged sixty years, an aneurysm of the abdominal aorta. A circumscribed pulsating tumor in upper third of abdominal aorta, with an upward and lateral expansion. A loud systolic murmur over tumor. A collapsing or Corrigan pulse. Systolic sound in both brachial arteries.

CASE III.—C. McC., aged forty-five years, first seen by Dr. Herrman, February 8, 1893. He complained of paroxysmal pain above the heart, extending through to the back. Over the second left interspace a slight pulsation was noticed, and a double murmur heard above the heart. In March, 1894, there is a large bulging tumor, the size of an egg, at the second left interspace. It pulsates freely with upward and lateral expansion. A systolic murmur is heard, and the percussion sound is dull over the tumor. The aortic sounds are clear and normal. The pulse shows the characteristic collapsing or Corrigan pulse. Over the brachial artery a distinct systolic sound is heard.

CASE IV.—In April, 1893, J. B., a commercial traveler, aged forty-eight years, called upon me on account of a persistent cough and mild spasms of the glottis which would occur during the night. A thorough examination of the upper air passages showed nothing which could cause the cough. Suspecting

some pressure on the recurrent laryngeal nerve by a thoracic growth, an examination of the chest was made. Nothing abnormal could be heard, except the unusual conduction of the two heart-sounds to the upper sternal region. The percussion sound was resonant. Normal vesicular breathing was heard everywhere. The heart sounds were normal and clear. In the brachial arteries a systolic sound was heard. The pulse was full, and slightly collapsing. The diagnosis of aortic aneurysm, with pressure on the recurrent laryngeal nerve, was made.

A week later, I was hastily summoned, and found the patient expectorating large mouthfuls of blood. This continued some hours, and a persistent paroxysmal cough came on, which continued day and night. Soon afterward he began to complain of a pain over the middle sternum. He described this as a dull, heavy feeling, and sought to relieve it by keeping the clothes raised from his chest. He soon began to complain of a lancinating pain extending from the sternum to the back. These pains, and the cough, continued with decided intermissions through the month of May. He obtained a certain amount of relief through the use of iodide of potassium, phenacetine, and salol.

In the latter part of May he was examined by two of the leading physicians of St. Louis, Dr. P. G. Robinson and Dr. H. Tuholske. The only abnormal signs at this time were the signs of a pressure on the left bronchus and in the adjacent portion of the lung. The diagnosis made by these physicians was "a thoracic tumor, probably aneurysmal." This condition continued during July, and he suffered, with slight intermissions, the most agonizing pains. These would radiate at different times in different directions. In the beginning of August, for the first time, a deep-seated pulsation became apparent over the second rib in the left infraclavicular space. A systolic murmur developed in the same place; this could also be heard over the left scapula. Over the heart the sounds continued normal. The brachial arterial sound continued through the whole illness, with periods of intermission, when the heart became weak. It returned, however, after the heart had been strengthened by digitalis. It disappeared entirely during the last days of his illness. He died in the first days of September, from exhaustion.

CASE V.—P. R. entered the City Hospital complaining of violent attacks of pain over the region of the heart. These occurred most frequently during the night, and would last, unless relieved, for one or two hours. He also complained of a partial loss of voice.

Examination showed a double murmur over the sternum. This was also heard over the left infraclavicular space and in the left interscapular space. This murmur extended downward toward the heart. The percussion sound was duller over the third cartilage in a limited area. The left ventricle was not enlarged. The pulse in the left radial and the left carotid was much weaker than the right. Systolic sound and murmur in the right brachial; it was not heard in the left. A laryngoscopic examination showed a paralysis of the left vocal cord.

CASE VI.—On July 9th I was called in consultation by Dr. Willis Hall to see L. O., a candy-maker, aged thirty years. It was stated that until July 1st he had steadily pursued his trade, but at that time had been compelled to give it up owing to alarming attacks of shortness of breath.

He had suffered with repeated attacks of spasm of the glottis. When I saw him the respiration was accompanied by a marked stridor, which was evidently due to an obstruction in the lower portion of the trachea.

An examination of the chest showed a dull area on percussion over the upper part of the sternum at the second costal

cartilage. The dullness extended slightly to the left of the sternum. There was no noticeable pulsation. A systolic murmur was heard over the dull area. This could also be heard behind between the scapulæ. Over the sternum, between the second and fourth cartilages, a double murmur could be heard. These murmurs covered the sounds of the aortic valves. The apex beat was slightly lowered.

Over the lungs the respiratory murmur was weakened and greatly obscured by a loud, stridulous rhonchus which was heard with the greatest intensity between the scapulæ and over the upper part of the sternum.

The pupils were normal. The left pulse was slightly less in volume than the right. Over both brachial arteries a distinct systolic sound could be heard.

An examination with the laryngoscope showed slight paresis of the left vocal cord.

The dyspnoea steadily increased and became continuous and the man died three days later.

A post-mortem examination, made by Dr. Elsworth Smith, revealed a globular aneurysm the size of an orange situated in the upper part of the ascending aorta at its junction with the transverse. The anterior wall was greatly thickened by fibrin, being a quarter of an inch in thickness, while the posterior wall was thin, bulging backward, and compressing the trachea at the bifurcation. There was a slight hypertrophy of the left ventricle with some roughness of the aortic valves, but they seemed to be patent.

SOME THERAPEUTIC NOTES ON THE TREATMENT OF SUPPURATION, TUBERCULOSIS, LA GRIPPE, SARCOMA, AND CANCER.

By J. S. WIGHT, M. D.,

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DURING the past winter I have had some opportunities to observe the effects of certain remedies in the treatment of diseases caused by micro-organisms. It is my object to make some notes on the action of these remedies, which will be mentioned below.

It has seemed, too, that the past season has been one in which the pathogenic micro-organisms have been unusually active. Attention may be called to suppuration, tuberculosis, *la grippe*, cancer, and sarcoma. Both private and hospital practice have given large opportunity for observation.

In regard to cancer and sarcoma some therapeutic observations will be recorded. While others try to find the cause of these diseases, our object is to try to find a cure for them. Because disease in general may be fatal is no reason for our neglecting to make a cure.

I have seen a large number of cases of suppuration—cases of empyema and abscess. I have used the following remedies: Carbonate of calcium, beechwood creosote, and bromide of gold and arsenic (Dr. Barclay's solution, "arsenauro"). The carbonate of calcium, in the form of prepared chalk, I have used for some years as an antidote to suppuration, and it ranks high for this purpose. The dose is from five to twenty grains. It may be given in milk to children. I generally combine it with a bitter tonic. This remedy is of great value in the treatment of boils and carbuncles.

In a number of cases of empyema thoracis I have used creosote in solution to irrigate the pleural cavity. Two openings are made into the cavity, and a perforated drainage-tube is drawn through them; this tube makes it easy and convenient to irrigate the pleura. In cases of exsection of the ribs irrigation has been made. The fluid has been limewater, either full strength or more or less diluted, containing from one to two drachms of beechwood creosote to the quart of limewater. The solution has been used twice daily at the normal temperature of the body. I am able to say that this treatment is very excellent, and has greatly diminished the period of convalescence of the patient suffering from empyema.

A married woman, about forty years of age, had suffered from extensive suppuration of the right knee joint. She had been in bed for nearly a year, and the pus had been let out from time to time. She was then admitted to the hospital in a very feeble condition. The openings and sinuses were irrigated with a mercuric chloride solution (about 1 to 5,000) twice a day. She was given five drops of Barclay's solution of bromide of gold and arsenic after each meal. In four or five weeks the dose was doubled. The improvement was slow, but in about two months she was so far recovered that she went home to take care of her family. While in the hospital she had small collections of pus form in various parts of the body; the abscesses were opened wherever they could be reached. The irrigation of the diseased knee aided in the recovery. But I have no doubt as to the value of the solution of the bromide of gold and arsenic as a curative agent. It probably acts as a germicide. The use of this remedy in other cases of suppuration tended to confirm this view.

In regard to the forms of tuberculosis which are likely to come under the care of the surgeon, I will make note of three remedies: Creosote, alcohol, and bromide of gold and arsenic. Creosote was given in doses of from half a minim to two minims after meals. No large doses were given. This remedy was given in limewater and syrup of Tolu and a bitter tonic. From considerable clinical observation, I have no doubt of the great value of creosote in the treatment of surgical tuberculosis.

In cases of tuberculosis of the joints I have applied alcohol locally with much advantage. A flannel roller bandage is put around the joint and then saturated with warm alcohol, the dressing being covered with oil silk. The persistent use of alcohol has enabled me to restore the knee joint in cases that have usually gone on so that exsection has been required. I have now under treatment a tuberculous hand in which suppuration occurred over the back of the metacarpus; by the persistent use of alcohol the function of the hand is slowly returning.

In a number of cases of surgical tuberculosis, in some of which there has been general infection, I have seen much improvement follow the use of the solution of the bromide of gold and arsenic. In one case of morbus coxæ in a little boy, from whose hip I let out considerable pus, this remedy brought about steady improvement when other remedies failed. In this case the evidence was more notable; the bromide of gold and arsenic was omitted from time to time, on account of an irritable stomach, when the disease would begin to recur rapidly. I have much experience to

show that this remedy is of value in the treatment of general tuberculosis.

The tendency of modern therapeutics is to find remedies that will do little or no harm to the differentiated cells of the body. How far success in this direction has been obtained, in so far as *la grippe* is concerned, it is not yet possible to say. The notes which follow under this head are derived from personal experience, as well as from considerable observation. Let me briefly note the following remedies: Alcohol, phenacetine, acetanilide, citrate of caffeine, morphine, chloride of gold and sodium, and creosote. Alcohol in small doses, to relieve pain and support the strength, may be given every few hours. Phenacetine and acetanilide appear to diminish the pain of *la grippe*, and are most useful in about five-grain doses. The following prescription has been useful:

R Acetanilide..... gr. ij;
Camphor. monobrom..... gr. ss.;
Caffeine citrate..... gr. ss.

M. Ft. pil. No. 1.

S.: Take one every three or four hours.

A cup of hot tea in which has been mixed one or two teaspoonfuls of malted milk will often give much relief. A small dose of morphine, say a sixteenth of a grain, will often make the grippe pains more bearable. A very excellent remedy for the broken-down condition of the nervous system which sometimes follows the toxic influence of the grippe poison is the chloride of gold and sodium. I have prescribed it in the following form:

R Auri et sodii chlor..... gr. ij;
Aquæ menth. pip..... f 3 x;
Tr. cinchon. comp..... f 3 xx.

M. S.: Take a teaspoonful in water after each meal.

One of the best remedies I have found for *la grippe* is creosote, given in doses of from one to two drops. I give creosote in limewater and syrup of Tolu, as a rule. Creosote will generally relieve the distressing nausea that sometimes accompanies *la grippe*. It has sometimes caused quiet and refreshing sleep when other remedies have failed.

At previous times I have noted the use of bromide of arsenic in the treatment of cancer and sarcoma, and I have no reason to change the views heretofore expressed on this point. In the treatment of these grave diseases I have also used the chloride of gold and sodium. I have found the use of these two remedies valuable in combination, giving them on alternate days.

I have more recently given the solution of the bromide of gold and arsenic to patients suffering from cancer and sarcoma. I have not yet had experience enough to speak with certainty as to the value of these remedies, yet I am convinced that they will turn out to be remedial in the true sense of the word. In some cases of adenosarcoma the absorption of the neoplasm has been brought about in a few weeks. It seems to me to be certain that the solution of gold and arsenic will prove to be a most valuable remedy in the treatment of sarcoma and the less virulent forms of cancer.

Recently I ligated the right common carotid for a large cancer of the right side of the neck in order to lessen the

hæmorrhage. This patient had been improved by taking the bromide of arsenic. The effect of the ligation was to make a very marked decrease in the size of the growth, the condition of the patient being much improved for the time.

In a few cases I have used as a local application pure benzene, brushing it over the cancer and the circumjacent tissues. The best opinion I can form at present in regard to this remedy is, that it has done much good in certain instances of epithelioma, perhaps bringing about a cure.

A CLINICAL CONTRIBUTION TO THE STUDY OF THE ÆTIOLOGY OF ENDEMIC CEREBRO-SPINAL MENINGITIS.*

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IN Keating's *Cyclopædia of the Diseases of Children* may be found an able article on Cerebro-spinal Meningitis by Professor J. Lewis Smith. To students of disease, especially to those with a love for diagnosis, the article will always stand as a monument to its author's remarkable keenness of observation and scientific intelligence. With such an article for our benefit and guidance it would seem almost vain to offer anything further on the subject, but I am led to do so after reading the following passages in his work—*i. e.*: "The numerous monographs on this disease (cerebro-spinal meningitis) which have appeared during the last few years relate to its *epidemic* form, and no published observations, so far as I am aware, describe the character or symptoms which it presents when it occurs as an *endemic* or naturalized disease." He also adds: "The endemic disease must, of course, be observed in the cities or populous towns, for there is no rural locality, as far as I am aware, in which the disease is permanently established." Personally, I would also like to add my convictions as to the ætiology of this sickness, believing that in this portion of its study will be found the true secret of its treatment. My experience here dates over two years in a scattered, mixed country-town district, and embraces sixteen positive cases, eleven of whom recovered perfectly and five of whom died. It is more than likely that I have had more cases of this illness both on my recovered and death lists than these figures show, as the certainty of diagnosis is often difficult where recovery takes place quickly or life is ended abruptly.

I will briefly relate the most important cases in my practice.

CASE I.—I had practiced here but a short time when I was called to see the child of a local butcher, aged five years, who had been taken suddenly ill. I found the child with a heightened temperature, some retraction of the head, projectile and persistent vomiting. I diagnosed cerebro-spinal meningitis and so informed the parents. They doubted my diagnosis, but the child passed through a typical though somewhat mild form of the disease. After two weeks' treatment it was seemingly well, except that the temperature remained constantly at 102°,

* Read before the Medical Society of the County of Queens, N. Y., at the annual meeting, held at Mineola, May 29, 1894.

the hyperæsthesia was well marked, and the child was very irritable. The family persisting in regarding the case as one of malaria, possibly coupled with rheumatism, and having disobeyed my injunction concerning diet and treatment, I abruptly abandoned the case, at the same time warning the family of the continued danger to their child.

The condition of well-being was only temporary, as in many similar cases; the child subsequently relapsed, developing marked meningeal symptoms. Another local physician was called, who summoned to his aid one of New York's leading physicians. He pronounced the case one of tubercular meningitis with a naturally unfavorable prognosis. After another short interval of time Dr. Dillon Brown, of New York, was called in consultation by the same physician. He pronounced the case one of cerebro-spinal meningitis with a somewhat hopeful prognosis. This difference of opinion, coupled with the wise counsel of the women of the neighborhood, caused the parents to surreptitiously convey the child to the Outdoor Department of Bellevue Hospital, with what result as to diagnosis and prognosis I have never been able to learn. This child fully recovered, with the exception of a slight strabismus, and is to-day one of the brightest and liveliest children in this place.

This case seems to illustrate many things, principal among which are:

1. The difficulty of diagnosing cerebro-spinal meningitis in the stage of effusion.
2. Its liability to remission after a period of comparative well-being.
3. The lack of a regular order of continuity in the manifestation of its symptoms, and this is a very important point in critical diagnosis.

No other cases of cerebro-spinal meningitis came under my notice at this time, nor for five or six months thereafter, and no other cases had been reported to the board of health by local physicians.

CASE II.—I was called to see a child, aged ten years, who had come home from school that same afternoon violently ill. Her temperature in axilla was 105°, the cerebro-spinal system profoundly affected, with intense headache and delirium, in which the element of fear predominated. The child's body was already covered with the "typical" spotted eruption. I diagnosed cerebro-spinal meningitis with a doubtful prognosis, and explained the usual character and progress of the malady to the parents, who were intelligent Germans. The stage of excitation lasted two weeks and the symptoms were very intense. The stage of effusion was pronounced, the child being totally deaf and seemingly blind, with nystagmus and strabismus as well, for over two weeks. At the end of the fourth week there was a cessation of the pressure symptoms, the child again became irritable and delirious for one week, to be again succeeded by two weeks of coma with symptoms as before. The case was most typical in all its aspects, paralysis of the rectum and bladder being marked, the peculiar flexion of the limbs on each other and then on the body, as well as all the later cutaneous manifestations being present. This child finally recovered without any impairment of speech, hearing, sight, or limb, and is now a perfectly healthy child. I lay particular stress on the positive manifestation of its sickness on account of what is to follow. The mother was far advanced in pregnancy when the child was taken ill, and, owing to the fears of her nearest neighbors and the isolated position of the dwelling, she was obliged constantly to attend her child, sleeping in the same bed. One month after the beginning of final conva-

lescence in the child I was called upon to attend the mother in confinement, and she had a speedy, normal labor. Mother and newborn child did well for five days, when the child was taken with pronounced symptoms of tetanus neonatorum, dying in thirty-six hours.

This case again illustrates many points in this disease of diverse phenomena:

1. The "typical" eruption was present on what was seemingly the first day of the disease. I have found this eruption at all periods, from the first to the tenth day of the illness, and at times not at all. This accounts for the difference found in various standard medical works which serve to puzzle rather than aid the serious seeker after knowledge.

2. It opens up a wide range of possibilities in connection with the newborn child, in whom there was no evidence of ill health or inflammation, for the similarity of the symptoms, allowing for the difference usually found in children's diseases at different ages, was certainly more than coincidental.

Clinically these cases were the same for their initial periods, with a change in the location of spasm from the nuchal to the mastoid region. Much theorizing might here be done as to possible bacteriological and hereditary interchangeabilities,* but as it is not my purpose to make this a theoretical paper, I will only mention the fact of "the for the time" scientific relation said to exist between certain diseases, as pneumonia, cerebro-spinal meningitis, erysipelas, etc., vouched for by such eminent bacteriologists as Pushkaoff, Baginsky, Eberth, and Fränkel; to these the micrococcus of Friedländer (pneumococcus) and that of Fehleisen (erysipelas) can not at times be distinguished from that found in cerebro-spinal meningitis. I venture to predict that the same will be found true in connection with tetanus.

The mother and her other two children remained at all times well, and I knew nor heard of no other cases at the time in the neighborhood, save the ones who will figure as Cases III and IV, and who lived about two miles distant, a partially settled country intervening.

CASES III and IV.—While attending to the care of an elderly lady subsequent to an operation for senile cataract, in which the outcome had not been as perfect as had been expected, owing to what the attending ophthalmologist had considered *inflammation from malarial sources*, my attention was called to her granddaughter, aged eleven years. This child had come home from school the previous day with a very violent headache, active delirium, and vomiting, and with her temperature at 104° in the axilla. I was impressed with the gravity of the case, and informed the mother as to my belief that the child had cerebro-spinal meningitis, but it seemed to do better than I had anticipated. At the end of a week the cerebro-spinal symptoms became more marked, yet not truly typical. At this period, though doubting my diagnosis with an inclination toward typhoid fever, the more I carefully reviewed the symptoms and weighed each separately, and then one with the other, the more I was convinced of the correctness of my original diagnosis. An intercurrent diarrhœa and the absence of any

* See article by the author in the *Medical Record* of November 21, 1891, on Interchangeability in Hereditary Transmissions.

typical eruption or decided nuchal symptoms added greatly to my perplexity of mind, which would have continued to this time but for what followed. About the second week of the child's illness an elder sister, aged fifteen years, who had previously been perfectly well, was taken suddenly ill, complaining of severe headache, which passed quickly into active delirium. This young woman passed through a typical attack of cerebro-spinal meningitis, in which the usual symptoms were all markedly characteristic. Especially so was the excessive hyperæsthesia so peculiar to this sickness; in addition, the case presented a novel feature, the face of the patient assuming and retaining even into convalescence the so-called *risus sardonius*, with rigidity of the jaw and difficulty in swallowing. Thus what had been to me a somewhat doubtful case in the younger had an almost positive corroboration in that of the elder.

The child first taken ill subsequently developed pressure symptoms and the character of the delirium more clearly approximated to that found in cerebro-spinal meningitis, although in other respects the symptoms were not so positive. Her life, however, always hung in the balance, and she only recovered after many months of care. The elder sister never had such grave symptoms, but recovered after a so-called "relapse" in which the original symptoms were modified and shortened. This family consisted of ten members, seven children (eighteen months to eighteen years) and three adults (women). Coincident with the "relapse" in the second of the former cases a younger sister, aged eight years, was taken ill with symptoms which, after careful analysis and watching on my part, I diagnosed as typhoid fever, and she passed safely through a mild attack of the illness. A younger brother, aged six years, was quite ill at the same time with what I was forced to diagnose as continued malarial fever (typho-malarial of many authors). Although not as sick as the other children, still I had at times fears as to his ultimate recovery. Still another brother had bad attacks of intermittent fever during all this time, as did the youngest child, a baby. These with treatment continued about the house. The only two in the family who did not complain of actual and decided manifestation of miasmatic contagious infection of some sort was the mother, who had narrowly escaped with her life the year previous from typhoid (her husband perishing at that time from the same sickness), and the eldest daughter. Thus far the cases were remarkable enough, but during this period a cousin of the children, a vigorous young man of twenty-four years, who lived two streets distant and who was in the habit of "dropping in" to learn the condition of his cousins, staggered into my office one evening manifesting very decided symptoms of typhoid fever. I told him to go home and to bed. His mother living in New York, he immediately proceeded there, coming under the care of Dr. Wallace and Dr. Loomis. He died after a short illness with pneumonic complications. The grand-aunt of these children, aged sixty-five years, an exceptionally vigorous and healthy woman for her time of life, died about one month after under my care, seven days ill with typhoid. She had been in the habit of calling to see the children every day, and lived about four streets away. During all this time there were no other cases of typhoid, cerebro-spinal, or typho-malarial fever in the neighborhood; it being pretty thickly populated, and I having a large practice therein, I was in a positive position to know this fact. I made careful and repeated examination as to the sanitary condition of the premises and their immediate surroundings and could not find any cause for complaint; on the contrary, the premises were quite sanitary. The surrounding streets, however, were in a frightfully unsanitary condition, and I warned the local health board as to my fears of a general attack of miasmatic contagious diseases; but it seemed as if my fears were not to be realized, as the health of the

neighborhood was very good, when I was compelled to go away for a few weeks, owing to overwork. The same locality upon my return, however, became the seat of a most violent and persistent endemic of fevers in which many persons lost their lives. The children ultimately recovered and are now in prime health.

It is extremely difficult for even one who passed through all these scenes to derive illustrations from the study of the conditions which presented, but I will mention several which appeal to me, and which I think will be further borne out by cases to be cited.

1. That it is exceedingly hard at times to draw a distinct line between certain forms of typhoid and cerebro-spinal fever, even if one has a large experience in both. I may say the same for typhus, although those who have not had the experience will deny this. There is certainly more than a passing connection between them all.

2. That it does not follow that these persons caught the sickness one from the other, nor that their various sicknesses were different save in name.

3. That the conclusion as to the proper name to be applied to such sicknesses does not depend on any particular symptom or symptoms so much as on a comparison of the symptoms presenting one with the other, and with such other seemingly analogous cases as may have come under the observation of the practitioner. The judgment of the observer is apt to be right in doubtful cases carefully studied by one with experience, his own fears to the contrary notwithstanding.

4. I should like to call the attention of the medical profession to the fact that the young lady of fifteen years had the condition known as *risus sardonius*. Taken in connection with the baby mentioned in Case I it will bear profound study. I have seen other cases in which this condition was noticeable, but never to the extent manifested by this girl.

CASE V.—I was called to see a patient, aged thirty-eight years, female, Bohemian, who had been ill two weeks. This case presented about one month after the convalescence of the two last cases and was some two streets removed. Four other members of the family I found to be sleeping in the same room with the sick woman. I warned the family of the danger entailed by such proceedings. The patient had typhoid fever and died in twenty-four hours, being in collapse when I called. After one week I was called to see the deceased woman's child, aged six years, who was ill with what I was forced to diagnose as continued malarial fever (typho-malarial). A second child, aged eight years, developed after another two weeks as true a case of typhoid fever as is ever found. Both these recovered, and I was congratulating myself upon the end of the trouble in the family when I was called to see the eldest boy, aged eighteen years, who had been sick for five days and who for some unaccountable reason had been allowed to go without my being sent for. I found the boy with a most typical case of cerebro-spinal meningitis and he died in forty-eight hours.

I introduce these cases simply to show the repeated number of times in which certain forms of miasmatic contagious diseases occurred in my practice in connection with cerebro-spinal meningitis. It would seem to me that different persons have a different susceptibility to the causative agent responsible for the disease, and that the mani-

festations vary with the nervous susceptibility of the individual.

CASE VI.—I was called to see a boy, aged fourteen years, who had been ill some fifteen days. His mother had been treating him with home remedies, but on account of his having gradually grown worse I was sent for. After careful examination I diagnosticated typhoid fever. Later examination and observation confirmed this, and I was able from the mother's statements and the condition of the boy to predict the time at which the fever would leave him. This boy was very sick, but I held out a hopeful prognosis and after five weeks' typical illness his temperature reached the normal, with improvement in all his symptoms. His temperature remained normal for about six days and I thought convalescence assured when he was suddenly taken violently ill with all the symptoms of cerebro-spinal meningitis. This boy passed through a typical attack of the same, extending over four months, five months from the beginning of his illness. He was unconscious for weeks and given over for dead many times. He developed most extensive bedsores which exposed the bones despite the best of care. He also had an extensive inflammatory condition of all his joints, ending in destruction of the hip joint, and I feared for the others as well. The house in which the boy lived was sold over his head during the illness, and at the end of seven months I had to have him removed in an ambulance. In addition to the disorganization of his hip joint the right side was paralyzed, but this yielded totally to treatment, and only for the necessity of using a lift on his right foot the boy is as healthy as one as I know to-day. During this boy's illness, his brother, aged twelve years, had typhoid fever, yet another brother continued malarial fever (typho-malarial), and I was obliged to send a younger sister, aged four years, "out on the island" as I could not force a low fever to leave her body. All finally recovered.

This case again illustrates the peculiar relationship which at times exists between miasmatic contagious diseases. It also illustrates the fact of typhoid being followed by cerebro-spinal fever. I have also seen this condition, as I believe, reversed—that is, the typhoid following cerebro-spinal meningitis. It also illustrates how far these cases may go and yet all the faculties eventually be restored. I would recommend to all who can afford it, especially when the surroundings are bad (and it is to be remembered that a source of infection may be far removed from the premises), that any other children in the family who may be of a nervous temperament or in delicate health be removed to a distance. I think that if the patient could also be removed safely from the locality in which the disease has been contracted, the chance of recovery would be increased and the liability to relapse lessened. This boy presented the separate rashes common to his sicknesses in their respective order—the typhoid rash in typhoid, and the spotted and petechial in cerebro-spinal meningitis. I have met at least nine different eruptions in this sickness; some cases present them all at different times, others present very few. The character of the eruptions is fugitive in all protracted cases, and, as protracted cases are the only ones in which we can seemingly make intelligent observations, they are apt to escape our notice unless frequently sought for. I have seen three forms of what to me might be called "spotted eruption": 1. Wheals

the size of twenty-five-cent silver pieces and not numerous when present. 2. Spots the size of the old-fashioned three-cent silver pieces, more numerous than the former. These are of a bright-red color and the second remind me of the typhus eruption, only larger. 3. A purplish eruption, the various spots very numerous and close together, resembling somewhat both measles and purpura hæmorrhagica. The latter I have considered the eruption which has given rise to the name "spotted fever," but I am ignorant as to whether I have judged correctly. I will repeat that I have seen these same eruptions in numerous other patients in the same neighborhoods where I have been treating dangerous cases of cerebro-spinal fever, and I must confess that although the former did not have cerebro spinal fever, I could see no difference in the eruption. This has been quite common in my experience. I have also noticed: 4. An eruption, a cross between hectic and scarlatina anginosa, usually the size of the palm of the hand. 5. An eruption (petechial) very much like that seen in ulcerative endocarditis. 6. Numerous miliary and papular exanthems. 7. Taches cérébrales. 8. A marbling of the skin (coming and going). I have also in certain cases been unable to see any practical difference between the eruptions found in typhoid fever and cerebro-spinal meningitis, although the case might be a typical one of the latter. I have given these general observations on rashes, but, realizing the importance placed upon these eruptions by students of this disease, I shall in the future make a more exact and scientific study of the same. I mention them also more particularly as they tend to show that it is the same fever described by Professor Smith, of New York, in 1870, that is now endemicized in Long Island City and no doubt in other portions of the island.

CASES VII and VIII.—I was called to see a child, aged five months, who had been ill three days. It presented all the evidence of fulminating cerebro-spinal meningitis. I predicted its early death, and it did die the same day. About two weeks after I was called to the next house in which the aunt of the former child resided. Her child (also aged five months) presented many of the symptoms of cerebro-spinal meningitis, but by prompt treatment the case resolved itself into a milder type, and the child eventually recovered after about one month's illness.

I have had numerous other cases in which I honestly believe I have been able to modify what certainly were cases of cerebro-spinal meningitis, but I have not included them in my list of proved cases. A certain number of cases of cerebro-spinal meningitis exhibit prodromal symptoms, and I believe that in such cases, diagnosticated early, the sickness may be modified in its intensity and life saved. It certainly has happened so in my practice. Physicians must always be on their guard for mild cases in which the spinal element is the most prominent; sometimes three physicians or more will see such a patient before the diagnosis is made, and then possibly only by chance through the attention being called to the spinal arching.

CASE IX.—I had been treating a temperate female patient, aged forty-five years, for about two weeks for intermittent

fever, and she was well and about the house. Owing to a family row she was severely frightened, several pistol shots being fired over her head. She immediately passed into active delirium and convulsions, subsequently manifesting all the symptoms of cerebro-spinal meningitis. She rallied from the irritative stage, but passed into coma, dying about the twelfth day.

I introduce this case as one of two in which the element of fear has seemingly precipitated the disease. I believe certain people, properly speaking, never can contract cerebro-spinal meningitis, but fear and other forms of nervous shock may make a naturally immune organization susceptible.

CASE X.—I was called to see a child, aged three years, who had been taken suddenly ill the same day. Temperature in axilla, 106°; projectile and persistent vomiting; cerebro-spinal system very powerfully affected. I found some grouped rose-red spots on her abdomen and side which I could in no wise distinguish from "typhoid spots." Her mother thought the child had chicken-pox, which was prevalent in the neighborhood. From the actions and appearance of the child I was convinced that it had beginning cerebro-spinal meningitis, and so informed the mother. Next day the child was somewhat better, the third day better still, the fourth still better, though it was very irritable. On the fifth day, as I was unable to go to see the child, my friend and neighbor Dr. McFarlane kindly called. He also, while recognizing something more than an ordinary cold or fever, was forced to regard the case as "unproven." On the sixth day Dr. McFarlane and myself went to see it together, and then for the first time we noticed some nuchal retraction. Even then, it was so well otherwise, we were disposed to view the retraction as accidental. All this time I had been carefully watching for leading symptoms, and had the attendants posted to notify me of their appearance, but nothing presented. I was so impressed with the correctness of my original diagnosis that I went again on the seventh day, when I found the body covered with the typical "eruption." The child's condition had suddenly changed, and the excessive hyperæsthesia so prominent in this sickness was well marked. The nucha and the rest of the spine were well retracted, and this continued until the child presented the most marked case of opisthotonus I have ever seen. It passed through a typical course of the sickness from this on, having the several eruptions, the usual cerebral and eye symptoms, a short cough, the peculiar flexion of limbs, scaphoid abdomen, incontinence of urine, fæces, etc.; also recurrent attacks of cerebral irritation during convalescence, which I have noticed in many other protracted cases, and which to my mind are a valuable diagnostic point in young children.

This case illustrates many points to me, and is as puzzling as can be on others.

It illustrates—

1. That all cases do not manifest their gravest symptoms at first, or that if the disease can be anticipated much good can be done by treatment. Neglect of the child for several days in the early stage, or failure to anticipate diagnosis, would possibly have meant death to the child, how readily can be imagined by all.

2. After the child had been sick for some time I learned that she had been removed from a burning building at midnight about a month previous to the beginning of her illness, and therefore count this as another possible

instance in which fright was a precipitating causative agent.

3. That it is wise to treat all cases presenting irritability of the cerebro-spinal system energetically, as we may possibly lessen the gravity of an attack of cerebro-spinal meningitis. I am at present treating five other cases which illustrate this point very fully, but space and their still being under treatment prevent my reporting them.

The most puzzling thing to me was that this child should present eruptions during the course of the sickness which could in no wise be told from typhoid and rubella (*Rötheln*). This place is a hotbed for typhoid, and I am not unfamiliar with the rash. The mother of this child also suffered from so-called rubella, *Rötheln*, or epidemic roseola, as did many other children and adults in the neighborhood. I have seen hundreds of cases of this many-named sickness here this spring, and, try as hard as I can, I fail to see any difference between certain of its eruptions and that found in cerebro-spinal fever. With this case I contrasted at the bedside that of an elder child having *Rötheln* without result. I am now treating three cases in which *Rötheln* rash preceded cerebro-spinal meningitis with other interesting features.

When one reviews the histories of the foregoing selected cases in his mind he ceases to wonder that the ætiology of this disease has been summed up by Professor Smith, in his otherwise classical article, in four words, as "probably a microbic disease." From present bacteriological and chemical study it would be idle and vain to attempt the formulation of any exact theory for the causation of cerebro-spinal meningitis. Its evidently close relationship to many other diseases, however, renders such knowledge most important to the medical profession. I will advance a few ideas, however, suggested by a close study of the disease at the bedside and such literature as has been available to me, not with a view to their acceptance as theories, but in the hope that they may stimulate thought and discussion on a subject so dear to every family, for it seemingly shows a preference for the most precocious and best-loved children.

Students of all other sciences have ready tangible and definite explanation for phenomena occurring in the various fields of Nature; medicine stands alone in asking grave and dignified men to accept theories for the causation and continuance of diseases which by comparison seem foolish. In other fields of science intelligent observations by trained minds have oftentimes outlined in advance what later scientific experiments and provings have conclusively demonstrated to be the true laws of Nature. The whole germ theory of disease had its beginning in comparative facts known to intelligent workers in many fields other than medicine. It is a singular fact that while in all other departments of Nature structural as well as developmental simplicity and uniformity is found to be the law, in theoretical medicine alone do we find a multiplicity and complication of causative agents advanced as responsible for phenomena which otherwise would seem to be simple continuation and interrelationship.

Every one seems to reason that because disease is un-

desirable it is unnatural, but disease leads to destruction and destruction to death, and death is as natural as life save in name. I therefore fail to see why the Creator should step aside to formulate special means for its accomplishment.

No one thinks of disputing the isomerism, metamerism, or polymerism of the chemist, or the laws of the interchangeability of the physical forces, as light, heat, electricity, etc., and it is reasonable to suppose that similar interchangeabilities exist between diseases. It certainly is a standing rebuke to the medical profession that the laws governing such relationships are not better known, but it certainly is not the fault of the clinician in the profession that it is not so. By confounding the synthesis and analysis of disease we seemingly accomplish the otherwise impossible task of "standing still in our science and art." Medicine seemingly fails to grasp the truths which other sciences strive to teach it, and remains alone in the dark; for cerebro-spinal meningitis promises to stand at the end of this century where Job Wilson thought it stood at the beginning of the same; and, strange to say, Wilson seems nearer to the truth than our latter-day medical theorists, despite all our boasted "superior intelligence."

426 JACKSON AVENUE, May 28, 1894.

AMYOTROPHIC LATERAL SCLEROSIS.

WITH REPORT OF CASE.

BY W. PAGE MACINTOSH, M. D., ETC.,

U. S. MARINE HOSPITAL SERVICE.

MICHAEL C., male, aged fifty-one years. Nativity, Ireland; occupation, sailor before the mast. Personal history good; no indications of specific trouble; occasionally used alcoholics to excess. No neurotic tendency in family.

About four years ago he had a fall, after which he could not sit down or assume the sitting position long at a time on account of pain in his back; he could walk, stand, or lie down without pain, but after sitting a short time his pain became so severe as to be unbearable. His work allowed him to stand; he therefore continued on duty.

On October 23, 1892, while under the influence of alcohol, he sustained a fall of ten feet distance, striking a hard floor with his back and shoulders; this was early in the night, and he lay as he had fallen until next morning. When he awoke he could not rise; in his own words, "My legs felt as if they were not my legs; there was no feeling in them nor could I move them." The left arm was also paretic, owing to fracture of the acromion and contusion of the nerve. The face, left arm, and leg were contused. The pupils were normal, the eyelids, lips, tongue, and soft palate gave no evidence of paralysis of cerebral origin. The ankle clonus, patellar reflex, and cremasteric reflex were all absent. Sensation in the lower extremities was suspended; sphincters of bladder and rectum normal. No bone lesion of spine.

The symptoms would seem to indicate pressure on the cord, resulting in flaccid paralysis and a break in the reflex arc. We know that the cord may be compressed for a long time without causing any appreciable change; but in this case, when neither the reflex arc nor the cord is destroyed in its entire diameter, the result must be spastic and not flaccid paraplegia.

The fact that this man was devoid of cutaneous sensibility, with loss of motive power in the lower extremities, would indicate pressure on the cord. Coming on suddenly without bone lesion leads to the belief that an effusion was the cause of pressure; the absence of reflex phenomena would also indicate that the lesion was either of the anterior horns or posterior external columns in the lumbar or lumbo-dorsal region; the loss of sensation in the legs would point to the latter region.

After remaining in hospital about six weeks, during which time hot packs and a mild current of electricity were used, he regained the sense of feeling as well as the power of motion to a considerable extent. This would tend to show that the effusion had been at least partly absorbed. A week later he tried to walk; this effort cost him two months in bed. During this time sensation was good and has remained so, but motion is greatly impaired, and atrophy of the muscles of the forearm and hand and to a less extent those of the leg has taken place.

There was not, nor has there been, any trouble with the sphincters of the bladder or the rectum, but, owing probably to paresis of the muscles of the abdomen, he has not the power to eject water from the bladder, this viscus emptying itself when full; the rectum acts in somewhat the same way. He suffers greatly from constipation. Confinement of a formerly active person causes this, but when peristalsis is stimulated by cathartics or enemata he can not control it until the rectum is empty. There is no tendency to bedsores. At the end of the period mentioned he began to improve again. After the lapse of six months the patellar-tendon reflex, plantar reflex, and ankle clonus gradually returned, and then became greatly exaggerated; the cremasteric and abdominal reflexes are still absent. The muscles of both upper and lower extremities became hard and stiff. When his leg was straight, and he was told to hold it so, it required great force to bend it; when flexed, with instructions to hold it so, great strength was required to extend it, both indicating spastic tendons.

The muscles of the forearm contracted to an extent that caused his fingers to become flexed on the hand. The fingers became clubbed and red at the end. This, with contractures, gives the hands the appearance of claws, which they still retain. The hand can be closed further but not opened. The grip or squeeze is very weak.

He complained for a long time that the application of snow to his skin causes feelings of burning, smarting pain, as if a hot iron had been placed in contact with the skin, causing the patient to start and cry out.

He is unable to raise his arms above his head, as he says the skin on his sides and under his arms feels as if it were drawing up his sides and tearing, causing so much pain as to lead him to desist. (Paralysis of chest muscles?)

In trying to walk or stand, he places his feet close together and walks with a dragging, shuffling gait, placing his weight on the flat of the foot. He soon loses control of his legs from spastic contractures. This causes jerking of reflexes, shaking of foot, tremor, etc. There are at present no sensory disturbances; in fact, no pain has been present at any time, except a feeling as of a cord around the waist (girdle pain) and dragging, shooting pain in the chest when he sneezed, which he does pretty often.

For eleven months after injury this man had no erections of the penis. After that time whenever he lay on his left side he invariably had an erection.

On several occasions he has experienced chilly sensations, and on one occasion chill was followed by rise of temperature to 40° C. (104° F.).

Except for a tendency to laugh very readily, if such is a symptom at all, with credulity and emotional excitability, the psychic disturbances noted by P. Marie,* of Paris, as being characteristic are not noticeable. In fact, in the six or eight cases I have observed, psychic disturbances were exceptional. The French, though a brave and courteous people, are exceedingly emotional as well as credulous, and their mental equilibrium is more readily disturbed. This must account for Marie's observations.

Placing the disease under discussion in its proper place as a primary systematic lesion, which means, to borrow the expression of Vulpian, the lesions which settle in and circumscribe certain well-defined regions without encroaching on neighboring ones, "there yet exist a considerable number of pathological states, evidently situated in the nervous system, which leave no material appreciable trace on the cadaver, or revealed there at most by the minutest lesions without determinate character, incapable in any case to explain the principal facts in the morbid drama."† Tetanus, hydrophobia, true epilepsy, paralysis agitans, inveterate hysteria, and chorea, "the antique group of neuroses," though studied with success on several points, are still practically inaccessible to the anatomico-pathologist and exhibit themselves as so many sphinxes which defy the most penetrating anatomy.

It is a well-ascertained fact that the form of trouble under discussion is a secondary descending degeneration of either cerebral or spinal origin. If of cerebral origin, the lesion or foci must be in the Rolandic area, or, to be more exact, according to Flechsig, and more recently Charcot, the posterior segment—lenticulo-optic—of the capsule divides this segment into three parts, and the anterior two thirds could not sustain a destructive lesion, even of small extent, without being followed by a descending degeneration of the corresponding pyramidal fasciculus, since the nervous fibers which traverse it seem to be a direct emanation from the pyramidal fasciculi. A destructive lesion in the cord at the point of these white fasciculi would also produce a degeneration.

In either case the lesion must be a destructive one, and the degeneration a descending one, since the pyramidal fasciculi are incapable of an ascending degeneration, just as the columns of Goll or Burdach are incapable of a descending degeneration.

It is scarcely necessary to call to mind the fact that degenerations either ascending or descending do not exist unless the destructive lesion attacks the white fasciculi.

In order to account for a variety of clinical phenomena in connection with the four pyramidal fasciculi, it is well to bear in mind the observations of Flechsig and Pierret, and these are: Regarding the semidecussation, designated generally as decussation of the pyramids, each pyramid gives origin to two spinal fasciculi, the one crossed, the other direct; but that this intercrossing is subject to variations is not so well known.

Thus Flechsig gives three groups in types: 1. This is

the most common and consists in a symmetrical semidecussation, each pyramid furnishing a crossed and a direct fasciculus. Seventy-five per cent. are of this type, the crossed being of the most importance and ordinarily represented by ninety-one per cent. of fibers of pyramid. Pierret has made observations reversing this proportion and making a variety of the same type; in this the direct fasciculus is represented by ninety per cent., the crossed by ten per cent. of all fibers; the intercrossed are here hardly worth taking into account. A cerebral lesion here would give paralysis on the same side of the body as the lesion, contrary to the rule.

The second type has been observed in eleven per cent. (11 in 100); it is the total decussation. The direct fasciculi fail completely.

The third or asymmetric type has been observed in the proportion of forty per cent. In this case there exist only three fasciculi—one pyramidal dividing into two, a direct and crossed, the second pyramid being intercrossed *in toto*.

The termination of this pyramidal fasciculi also interests us. The pyramidal fasciculus grows smaller gradually as it descends toward the filum terminale. This fact proves that its fibers gradually disappear in the descending course of the fasciculus through the different spinal regions. Flechsig and Charcot both assert that the termination of the nervous fibers which appear to be a direct emanation from the constituent fibers of pyramidal fasciculi is not in the anterior roots, because, while the anterior cells and anterior roots are already greatly advanced in development, the pyramidal fasciculus is barely traced (*The Anatomy of the Cord in the Newborn*), there can therefore be no continuity.

But the opinion of the majority of writers is that a connection does exist between the terminal extremities of the pyramidal fibers and the multipolar motor cells. It is also possible that some of the fibers are prolonged into the commissure and thus reach the opposite side of the cord.

The causes of amyotrophic lateral sclerosis are somewhat obscure. That the disease may be caused by injuries we see in the case just related. It is probable that anything that will cause spastic spinal paralysis may also cause this. I have not observed any cases of this trouble caused by poisoning, though I have reported several cases of atrophic paralysis of spinal origin caused by arsenical poisoning* in the adult; traumatic influences, exposure to cold and wet no doubt exercise a causative influence in this as in other cord lesions.

In the diagnosis much may be gained by exclusion as well as by distinction, if duly impressed with the negative symptoms—viz., the absence of sensory disturbances, impairment of bladder efficiency, and bedsores.

The positive symptoms are at first confined to upper extremities. The rigidity of limbs, increase of all muscular reflexes, with a true motor paresis, is more characteristic of the disease first described by Seguin in 1873, and later by Erb, as "a peculiar paraplegiform affection." Lateral sclerosis, in fact, the amyotrophic form, is only a

* Obersteiner. *Annals of the Universal Medical Sciences*, 1893, 13-16.

† Charcot. *Pathological Anatomy of the Nervous System*, p. 3.

* Atrophic Paralysis in the Adult. W. Page MacIntosh. *Medical Record*, February 7, 1885.

variety or type of the same disease, the motor cells having the destructive effects of lesion transmitted to them at different points, as do the anterior cornua, the latter causing atrophy. Spitzka accounts for this atrophy by the disappearance of many of the fibers which run into the gray substance from the reticular process. He states that the cells in the anterior horn are not involved, as he has observed, although in its gross dimensions the anterior horn seems to be, as a whole, atrophied.

I have been much interested in a recent paper by Dr. Hammond,* but can not agree with him that amyotrophic lateral sclerosis and progressive muscular atrophy are the same, clinically or pathologically. That spasticity often precedes the atrophy and paralysis, or rather paresis, is true, but that the spastic symptoms or the excitable tendon reflexes disappear when atrophy and paresis begin is not true, as evidenced by the case now under observation. Furthermore, in progressive muscular atrophy we have no contractures, nor do we have periods of rest or apparent improvement, as in amyotrophic sclerosis, but a progression. Again, as pointed out, neither ascending nor descending degenerations are possible when the lesion is limited to the gray substance.

Profound alterations of the cord, when limited to the gray substance—either acute, as infantile paralysis, or chronic, as in protopathic spinal amyotrophies—are never followed by descending degeneration, unless it be by accidental propagation to the white fasciculi.

Again, according to the Wallerian law of secondary degenerations of nerves, it is always in a direction from the trophic centers. The pyramidal fasciculi can only degenerate downward. The only fasciculi in the lateral column that will submit to an ascending degeneration are the direct cerebellar fasciculi, and, so far as known, no symptomatology has been affixed to their lesions.

Leaving aside the theories of muscular origin and of peripheral nerve origin of progressive muscular atrophy, the disease has been thoroughly studied and ably discussed in the past twenty-five years by Eisenmann, Roberts, L. Clark, Friedreich, Erb, Charcot, Wood and Dercum, Osler, etc. A majority of these and other observers show that by far the larger number of cases involve the anterior cornua alone, or these in connection with the antero-lateral columns; the number of cases in which the antero-lateral columns alone, or with the posterior columns and posterior nerve roots, being very limited, and more accurate investigation increases the number of instances in which lesions of the anterior cornua are found; and, as the fibers of the anterior roots arise from the cells of the anterior cornua, disease of the latter must affect unfavorably the nutrition of the former, hence their atrophy. This disease would be regarded, then, as a chronic anterior poliomyelitis, and the apparent extension to other parts of the cord, if at all, is merely a coincidence, or on the ground of continuity of these parts.

The pathological lesions are in no way the same, nor are the clinical phenomena in any way allied in progress-

ive muscular atrophy and amyotrophic lateral sclerosis, although progressive muscular atrophy may at times affect nearly all the different columns of the cord. Anæsthetic leprosy, labio-glosso-pharyngeal paralysis, disseminated sclerosis, etc., are not difficult of differentiation, if the origin, course, and negative symptoms are considered.

The treatment of amyotrophic lateral sclerosis and its allied affection, bulbar paralysis, like that of progressive muscular atrophy, can be but palliative and symptomatic, since the lesion is progressive in spite of drugs. Care of the patient, with attention to diet, exercise, climate, and baths, should be looked after. Most important of all is rest, as it seems to retard the progress of the case. Strong tonic treatment is indicated. Strychnine, if used at all, should be carefully watched, and stopped when reflex excitability becomes marked. In the case which I now have under observation I am under the impression that extract of Indian hemp has done much good. He has taken this remedy for about a year now; it acts probably by contracting the blood-vessels as well as by quieting nervous irritability. Were it possible to absorb any of the new-formed tissue, the combination of ammonium chloride and iodide of potassium should do some good. I have not seen the recent gold salts used, but have seen good results from these preparations in cirrhosis of the liver and kidneys, and should expect *a priori* good results in sclerosis of the cord.

Electricity to exercise the paretic muscles is palliative only. The cells controlling the muscles are degenerating and a progressive atrophy can hardly be prevented.

BOSTON.

GALVANIZATION OF THE BRAIN.

By J. F. HERRICK, M.D.,

OTTUMWA, IOWA.

In an article in the *Therapeutic Gazette* for December, 1893, Dr. H. A. Hare made the statement that it is impossible to pass a current of electricity, such as is usually applied to the head, through the brain by means of electrodes applied to the cutaneous surface of the head. He bases his assertion on the fact that the electric current follows the course where it meets with the least resistance, saying that in the case of the head, with the electrodes applied to opposite sides, that course is through the skin and soft tissues external to the cranium itself.

The experiment given—in which, with the electrodes (sponges) applied to the front and back of the head, a current of five milliampères was shown, and with one electrode (a needle insulated except at the point) thrust through a trephine opening into the brain substance only 3.75 milliampères were shown with the same number of elements—is not conclusive.

The effective current from a given number of cells is in proportion to the amount of resistance met with in the circuit, and it is a fact that the larger the electrodes, other things being equal, the stronger the current. Therefore, in Dr. Hare's experiment, the difference in the current shown in the two instances did not depend entirely, at least, on the resistance offered by the bone, membranes, etc., but

* G. M. Hammond. Progressive Muscular Atrophy. *N. Y. Med. Jour.*, Jan. 6, 1894.

upon the resistance offered by the small metal electrode introduced into the brain substance. The size of the electrodes plays a very important part in the application of electricity to the body as a therapeutic agent.

The tissues of the body vary greatly in the resistance offered to the passage of a current through them.

It is alleged that in the percutaneous application of electricity the epidermis offers about three hundred times the resistance that all the intervening tissues do, and that the more succulent tissues offer the least resistance. In that case the brain would be among the best conducting tissues of the body, and it is so classed by good authority.

In order to be certain as to the resistance offered by bone as compared with other tissues, the following experiment was made (the materials used were fresh beef, bone, muscle, and fat): A current was passed through four inches of fat and fibrous tissue and the milliamperemeter registered 1.75 milliamperes. The same current passed through four inches of muscle gave 3.75 milliamperes; through four inches of bone, 2.25 milliamperes; through two inches of bone plus two inches of muscle, 3 milliamperes; through one inch of bone, 3.25 milliamperes. It may be seen from this that of the three tissues tried muscle is the best conductor and by far the poorest is fat and fibrous tissue. The scalp is composed mostly of fibrous tissue and fat, therefore we would expect to find it very resistant.

The thickness of both sides of the skull together is little more than half an inch. Does that half inch of more resisting bone with, say, seven inches of less resisting brain tissue offer a greater total resistance than about ten inches of skin and fascia through which the current must pass in going around the cranium?

The following experiments were made in order to satisfy myself as to whether the current passed through the brain or not. A dog was trephined in two places, one opening over each hemisphere on a transverse line. A given number of cells were used and a current passed transversely through the head by means of ordinary hand (sponge) electrodes. The milliamperemeter in the circuit registered ten milliamperes. For one of the sponge electrodes a broad, flat needle was substituted. It was first thrust beneath the skin opposite the other electrode and the meter registered five milliamperes; which was only one half the current passed when two sponges were used. The needle was then thrust about two inches into the brain tissue through one of the trephine openings and the meter registered seven milliamperes. The meter was now taken out of the circuit and the original sponge electrode substituted for the needle. The electrodes were applied to opposite sides of the head and the current was allowed to flow. A cord was attached to either post of the meter and fitted with needle electrodes. This was entirely separate from the other circuit and had no cells in the arrangement. The needles were first inserted under the skin, one on either side of the head immediately beneath the sponge electrodes, and a current of seven milliamperes was immediately passed through. The needles were moved toward each other and inserted beneath the skin at short intervals, showing a de-

creasing current until they were brought within about an inch of each other on the side of the head, when only a quiver of the needle was noticed, showing that the resistance offered by an inch of the skin was less than that of the milliamperemeter and cord connections. The needles were then inserted one through each of the trephine openings into the brain itself, about two inches apart in the direct line of the current. Only a quiver of the needle was observed. This may be interpreted in one of two ways. It may mean that very little current was passing through the brain, or that the resistance offered by two inches of brain tissue was less than that offered by the milliamperemeter circuit and the current continued its direct course through the brain. The latter is the true explanation, as was shown by other tests. By means of a double or divided cord two electrodes were connected with the positive post of the battery. The first or sponge electrode was connected directly with the cord and applied as before opposite the negative sponge. The second positive electrode, a broad needle, had the milliamperemeter intervening between it and the positive post of the battery. As stated, the sponges were applied to opposite sides of the head and the current allowed to flow. The needle was then plunged into the brain substance a distance of two inches, when three fourths of the current immediately passed through the needle and milliamperemeter part of the circuit, showing that the resistance offered by the brain and one side of the skull was *not* greater than the resistance offered to the passage of the current through the skin, as stated by Dr. Hare. Otherwise the entire current should have passed through the skin and not through the brain and smaller needle electrode. From the foregoing it would appear that electric currents may and do pass through the brain when an electrode is applied to either side of the head.

Dr. Hare's statement that any current passed through the head would so stimulate the motor centers as to produce a spasm does not agree with the teachings of other authorities on that subject. The galvanic current under ordinary conditions does not produce muscular contraction except when the circuit is opened or closed, and the smallest current which when applied over a superficial nerve will produce cathodal closing contraction is about two milliamperes.

Electricity is like water: where the channel is wide the current is slow, and where the channel is narrow the current is swift and intense. A cross section of the head, including the brain, makes a wide channel for the current used in such application; therefore the current passing through any motor area is so small that it does not cause sufficient stimulation to produce action of the corresponding muscles. If the current is made strong enough, spasms of individual muscles or general convulsions will take place, as has been proved by experiments on animals.

The Death of Professor Helmholtz, of Berlin.—The recent death of Dr. Hermann Louis Ferdinand Helmholtz, the distinguished physicist, at the age of seventy-three, will be felt all over the civilized world as a calamity, and by none more keenly than by the medical profession.

THE
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Edited by
FRANK P. FOSTER, M. D.

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LAPAROTOMY IN PERFORATION OF THE INTESTINE DUE
TO TYPHOID FEVER.

THE *Journal de clinique et de thérapeutique infantiles* for August 30th publishes an article on this subject by Dr. L. P. Alexandroff, of Moscow, in which he remarks that perforation of the intestine caused by ulceration in typhoid fever and followed by secondary septic peritonitis is a complication that must be considered fatal, except in rare cases where pre-existing adhesions prevent the peritonitis from becoming general. It is very easy, says the author, to understand that some satisfactory results obtained by surgical treatment in peritonitis due to perforation of a particular origin have suggested the idea of employing this method in perforation of the intestine due to typhoid fever. This operation was practiced for the first time in typhoid fever by Professor Lücke, of Strassburg, in 1885. Then it was performed by Bartellet in 1886, by Morton and Bontecon in 1887, by Senn in 1889, by Kimoura in 1890, and afterward by Miculicz, Wagner, and Taylor.

Dr. Alexandroff relates the case of a boy, nine years old, who was attacked with a grave fever four days before the author saw him. The high temperature, the rapid pulse, and the general condition indicated typhoid fever. On the 29th of October persistent and abundant vomiting set in, the pulse fell suddenly, and the patient complained of pains in the abdomen. On the following morning the abdomen was swollen and sensitive on palpation. The pulse was extremely weak and rapid, and the general condition grave. In the evening the patient was very weak and emaciated, the tongue was very foul, and the lips were dry. The abdomen was distended and very sensitive on pressure, and the walls were extended. On percussion, the presence of an exudate was ascertained. The respiration was rapid and superficial; the pulse weak, rapid, and hard to count; the temperature, 104° F. These grave symptoms, says the author, showed without doubt that there was peritonitis due to perforation of the intestine. As the patient's condition was very serious, almost hopeless, there was but one thing to do, and that was to open the abdominal cavity. All the symptoms of acute peritonitis set in, and laparotomy was performed. When the peritonæum was opened a quantity of turbid liquid with membranous shreds, of a foetid odor, escaped from the abdominal cavity. The intestine was distended, and on the surface small hyperæmic spots were seen; these spots were found on the aspect of the intestine opposite the insertion of the mesentery. Evidently they corresponded to ulcerations of the intestine. The mesenteric glands were tumefied and hyperæmic. The vermiform appendix was entirely changed, hav-

ing a large opening through which the end of the index finger could be passed. The author removed the appendix and united the lips of the wound with two silk sutures. The abdominal incision was closed with silk sutures, and in the lower part a drain was introduced. The operation lasted twenty-five minutes, and at the end of that time the patient was extremely weak, but he regained consciousness and drank some water to which valerian was added. However, the weakness increased and death took place twenty minutes later. The autopsy confirmed the diagnosis of typhoid fever. An examination of the vermiform appendix revealed three large perforations, one on the end and the two others on the lateral surface.

In regard to the question of surgical intervention in perforation of the intestine due to typhoid fever, the author remarks that it has not yet been settled. Up to the present time recovery has not been obtained except in cases that were not serious, and never when perforation occurred during the course of the fever. The number of patients operated upon and the method employed are as yet so little known that it is impossible to say anything definite on the subject. The author adds that Dr. J. Ewing Mears, in considering this subject at the first Congress of American Physicians, in Washington, in 1888, said: 1. That there was no reason why the operation should be done in cases where perforation took place during the period of increment of the symptoms of an infectious disease. 2. That in the lighter cases, where perforation took place at the end of the third week or later or during convalescence, laparotomy could be done with the formation of an artificial anus. 3. That the rapidity with which the operation was performed was an essential element of success. Of course, says Dr. Alexandroff, it is very difficult to determine exactly when the operation should be undertaken. It is very rare that perforation of the intestine occurs before the third week. It is absolutely necessary to take into consideration the patient's general condition; it is also very important to choose the proper moment—the sooner the operation is done the greater are the chances of recovery. Even in perforation not due to typhoid fever the prognosis is always doubtful in cases where general peritonitis has already manifested itself. If these perforations complicated with generalized peritonitis give such bad results, even when they are not due to typhoid fever, they are much more fatal in patients attacked with this disease. Dr. Alexandroff thinks that an early operation often guarantees good results. The symptoms of peritonitis are very clear; it is difficult only to determine if it is perforative or non-perforative. Although, in some cases, non-perforative peritonitis due to typhoid fever is followed by spontaneous recovery, surgical intervention does not lessen the chances of a favorable issue; on the contrary, it increases them. But the physician must not wait until symptoms of perforation have shown themselves, he must take the case in time.

With regard to the method of operation, Lücke's is the one to employ; he advises the formation of an artificial anus. In cases like the one mentioned, where perforation occurred in the vermiform appendix, one must simply remove the appendix, which takes very little time. It is important also to disinfect

the peritonæum. Perforative general peritonitis is always infectious, and, as it is impossible to disinfect the peritonæum carefully, it is much better to remove all the liquid or to facilitate its flow by drainage. Finally, says Dr. Alexandroff, although the results obtained up to the present time by laparotomy in typhoid fever have not been satisfactory, it is to be hoped that the technique of this operation will be perfected, and that it will be undertaken sooner, and thus bring about better results.

PERSISTENT RECURRENCES OF INFLUENZA.

DR. THIBAUDET, of Saint-Claude, contributes an article on this subject to the *Gazette médicale de Paris* for September 1st in which he remarks that immunity from influenza, supposing that it exists at all, is of short duration. From a symptomatic point of view, nothing occurs in the interval between the different attacks. The apyretic patient recovers in the usual way, more or less exhausted and asthenic, according to the mode of reaction peculiar to each person, and, above all, according to the presence or absence of anterior morbid conditions. Suddenly the disease returns; fever reappears, and at the same time the characteristic pains in the head and limbs, coryza, coughing, laryngo-tracheo-bronchitis in the thoracic form, vomiting and diarrhœa in the gastro-intestinal form, and prostration and extreme lassitude in all forms appear. Generally the symptoms which predominated the first time appear again, but this is not always the case. Aside from complications, the duration of these new attacks is not longer or shorter than that of the first attack. Those which occur from six months to two years or more after the first seizure are not doubtful, and all physicians who practice in regions where influenza is endemic have observed many examples. It appears, then, that, far from conferring immunity, the first attack of influenza often predisposes the patient to a return of the disease.

Many physicians think that the disease is due to the swarms of common microbes living in the organism, especially on the skin and in the mouth, and that under certain influences, especially meteorological, the virulence of these germs increases enormously, the danger of contagion becomes greater, and an epidemic is the result. After a careful study of this question, and after experience with this disease, Dr. Thibaudet thinks the following conclusions may be drawn: 1. That during a period of from twenty days to four months influenza may attack the same organism from two to four times, with more or less prolonged intervals of complete apyrexia. 2. That these repeated attacks should be attributed to a series of autochthonous reinfections in a soil especially favorable to them. The greater virulence of the pathogenic germ is commensurate with the greater contagiousness.

MINOR PARAGRAPHS.

SMALL-POX IN DUBLIN.

THIS contagious disease has broken out in Dublin, where an outbreak has not taken place before for the past fourteen

years. It began in an unvaccinated infant in the North Dublin Union Workhouse, but how it originally arose could not be ascertained. The northern part of the city has chiefly supplied the small-pox patients, who have been sent to Cork Street Fever and the Hardwicke Hospitals, only four patients having been admitted from the southern part of the city. All the cases have arisen from the North Workhouse or from tenement houses. Most efficient means have been taken to prevent the disease from spreading by vaccination and revaccination, disinfection of apartments where cases have occurred, and the burning of infected clothes and bedding, compensation for the latter being allowed by the corporation. The medical officers of the city dispensaries have arranged to make a house-to-house inspection among the poorer classes and vaccinate or revaccinate all who are willing to permit the operation, while dispensaries are opened in the evenings to vaccinate or revaccinate those who can not attend in the mornings. Among the deaths recorded was that of a woman, aged fifty-one, who had been vaccinated "in infancy and had one small bad mark." During the week preceding our correspondent's writing there were about eighty cases under treatment in the hospitals. There is little doubt that this outbreak of small-pox will shortly be stamped out and that the mortality will be very trifling; but should it increase to any great extent compulsory vaccination and revaccination will be adopted.

THE FAMILY DOCTOR AND THE HOSPITALS.

A HIGHLY esteemed correspondent dissents from the spirit of our last week's editorial article on this subject—or, more probably perhaps, misapprehends it. He says: "It is a well-known fact that physicians outside of the hospital staff, while they may be perfectly competent in many things, are not familiar with the workings of a thoroughly equipped operating-room, and the slightest mistake in asepsis may mean the loss of the patient. How, then, can the conscientious physician, knowing these facts, dare to jeopardize the life of his patient?" In the first place, we deny most emphatically and unequivocally that the capability of administering the principles of asepsis and antiseptics is confined to men who hold hospital appointments. In the next place, it was not the hospital surgeon's patient that we were speaking about, but the outside doctor's patient who had entered a hospital to avail himself of its material resources, and not from any distrust of his own physician. Carried to its legitimate conclusion, our correspondent's contention would justify any conceited practitioner in appropriating his brother-practitioners' patients whenever and by whatever means he might be able to do so. This, of course, would be intolerable.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending September 11, 1894:

DISEASES.	Week ending Sept. 4.		Week ending Sept. 11.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	33	15	25	17
Scarlet fever.....	14	3	17	7
Cerebro-spinal meningitis...	0	0	0	1
Measles.....	14	1	16	1
Diphtheria.....	101	32	124	37
Small-pox.....	18	0	13	1
Tuberculosis.....	90	104	71	121

Changes of Address.—Dr. Calvin F. Barber (Brooklyn), to No. 57 South Oxford Street; Dr. George W. Jarman, to No. 61 West Seventy-fourth Street.

Society Meetings for the Coming Week:

MONDAY, September 17th: New York Academy of Medicine (Section in Ophthalmology and Otology); Hartford, Conn., Medical Society; Chicago Medical Society.

TUESDAY, September 18th: New York Academy of Medicine (Section in General Medicine); Syracuse, N. Y., Academy of Medicine; Medical Societies of the Counties of Kings and Westchester, N. Y.; Ogdensburgh, N. Y., Medical Association; Baltimore Academy of Medicine; Connecticut River Valley Medical Association (Bellows Falls, Vt.).

WEDNESDAY, September 19th: American Association of Obstetricians and Gynecologists (first day—Toronto); Harlem Medical Association of the City of New York; Medico-legal Society, New York; Northwestern Medical and Surgical Society of New York (private); New York Academy of Medicine (Section in Public Health and Hygiene); Medical Society of the County of Allegany, N. Y. (quarterly); New Jersey Academy of Medicine (Newark).

THURSDAY, September 20th: American Association of Obstetricians and Gynecologists (second day); New York Academy of Medicine; Brooklyn Surgical Society; New Bedford, Mass., Society for Medical Improvement (private).

FRIDAY, September 21st: American Association of Obstetricians and Gynecologists (third day); New York Academy of Medicine (Section in Orthopædic Surgery); Baltimore Clinical Society; Chicago Gynecological Society.

Letters to the Editor.

PROLONGED GESTATION.

CLEVELAND, O., August 28, 1894.

To the Editor of the New York Medical Journal:

SIR: I wish to report this case in the *Journal*, as it is of great interest to me and may be of interest to others, and also may be the means of other similar cases being reported.

I was called to see Mrs. S. on February 24, 1894, in the morning; German, aged twenty-seven years. This was her fifth pregnancy. The other labors were normal. Her last menstruation was on April 22, 1893. On February 3d, two hundred and eighty-seven days after her last menstruation, she was taken with supposed labor pains. A midwife was called, who said that "it was not true labor," and returned home.

The pains subsided.

I found on examination that the first stage of labor was over. She had had no pain since February 3d.

I thought by mechanical irritation with the finger at the os I might be able to bring on contractions, but failed.

I left her three sulphate-of-quinine pills of three grains each; one pill to be taken every three hours, and to call me if pains set in.

I called in the evening; no pain. The woman was worrying. I dismissed about twenty women, who were there to tell her of all the bad cases that they had ever known or heard of.

I gave her a teaspoonful of fluid extract of ergot and waited for half an hour. No contractions, except there seemed to be slight contraction of the uterus, so the membrane could be easily ruptured.

The membranes were ruptured, and I waited three hours, and at intervals of fifteen minutes made an examination, leaving the finger there for some time to bring on contractions; but it was of no avail.

Instruments and an anæsthetic were spoken of. She and her husband would not consent to an anæsthetic. She said she could stand the instruments without.

I had some little difficulty in applying the forceps as the child was above the superior strait. She was delivered quite easily of a ten-pound girl yet alive but weak.

The woman and child have done well. It is my opinion labor should have occurred on February 3d.

W. S. JAMES, M. D.

A FORGED DIPLOMA.

MILLS TRAINING SCHOOL, BELLEVUE HOSPITAL, }
September 6, 1894. }

To the Editor of the New York Medical Journal:

SIR: I wish to call to your attention that a forged diploma of the Mills Training School for Male Nurses, Bellevue Hospital, is being used by Samuel A. Bowers, *alias* Albert Sidney Button. This school has never granted him a diploma.

OGDEN MILLS, *Secretary*.

Reports on the Progress of Medicine.

ORTHOPÆDIC SURGERY.

By HENRY LING TAYLOR, M. D.

Spinal Anterior Curvature with Mental Aberration.—

Three cases of mental disorder associated with a vicious attitude and a remarkable antero-posterior curving of the spine are described by Dr. S. Weir Mitchell (*Medical News*, Dec. 9, 1893). The cases were those of a man, a girl, and a boy, of whom the two latter were hysterical. In the case of the girl the curvature developed within a few months; the whole spine became bowed, the belly was protruded, and the head, which was dropped toward the chest, was elevated in order to see by arching the small of the back. There was no possibility of straightening the spine either passively or actively, but the attempt did not cause pain. There was little power of head rotation or flexion, though the neck muscles were not rigid. With gain in the mental state, the spinal symptoms were alleviated. The same description applied to the man, except that his difficulty was above the lumbar region. The author believes that these cases represent a novel clinical group.

Typhoid Spine.—The painful condition of the spine sometimes occurring after typhoid fever, and called "typhoid spine" by Dr. Gibney, who regarded it as a perispondylitis, is believed by Dr. William Osler (*Am. Jour. of the Med. Sci.*, Jan., 1894) to be in many instances a neurosis, similar to those sometimes observed in other regions after typhoid, and associated with neurasthenic symptoms. The author adds that it is not unlikely that several distinct affections have been described under the designation of "typhoid spine," and would not be understood as denying the possibility of a perispondylitis.

Transversectomy and Drainage of Tubercular Focus for Pott's Paraplegia.—Dr. V. Ménard reports (*Revue d'orthopédie*, January, 1894) three cases of operation for Pott's paraplegia in girls from nine to eleven years. In each case the paralysis had begun from one year to eighteen months before,

and had been complete for several months. In the first case, the Pott's disease was in the mid-dorsal region, and there were large bedsores at the level of the trochanters. Laminectomy was performed without benefit, and death occurred from continued suppuration of the bedsores eight months later. In performing laminectomy on the second case of dorsal Pott's, the tubercular focus in the vertebræ was accidentally opened. The paralysis rapidly disappeared, and the patient was walking in two months.

In the third case there was Pott's disease of the upper dorsal region, and laminectomy was performed without benefit. Two months and a half later several transverse processes were excised and the tubercular focus was evacuated. The patient was able to move the toes the same day, and the paralysis rapidly disappeared. The author recommends transversectomy with opening and drainage of the tubercular focus, instead of laminectomy, for Pott's paraplegia.

Scurvy in Infants Mistaken for Osteo-tuberculosis.—During the recent discussion on infantile scorbutus at the New York Academy of Medicine (February 15, 1894) several cases were cited where the exquisite tenderness and swellings near the articular ends of the bones of the lower extremity led to errors in diagnosis. Dr. Hall reported that one of his cases, with a swelling about the knee, had been diagnosed sarcoma, another tubercular osteitis of the knee, and a third infantile paralysis, on account of the helpless condition of the legs. H. L. Taylor's case (*Am. Med.-surg. Bulletin*, Feb. 1, 1894) had been taken for Pott's disease and for disease of the hip joint. Dr. Dillon Brown, to whom I am indebted for the two following citations, has called my attention to Howard Marsh's report of two cases in young children, in whom scurvy, attended with swelling in the gluteal region, was at first regarded as hip disease. The peculiar character and location of the swellings, the frequent presence of spongy or bleeding gums, and the rapid improvement on fresh milk and orange juice, should prevent mistakes.

Rare Spinal Affections.—Among the more unusual spinal affections considered by Howard Marsh in a recent lecture (*Lancet*, Sept. 30, 1893) are (a) those of early life; these may be tubercular, of which he saw a case six months old, or a lateral or posterior bowing due to rickets, or the bowing with exquisite tenderness due to scurvy. Then there is (b) a type designated as "quiet spinal caries," in which the course of the disease is rapid but painless, and ends in firm ankylosis. The author takes pains to say that the amount of ankylosis following joint inflammation is determined by the plastic character of the inflammatory process, and not by the fact that the joint is artificially kept at rest. He has frequently seen tuberculous joints recover with absolutely unimpaired movement after having been uninterruptedly kept in splints for eighteen months or two years.

He also mentions (c) two cases of primary sarcoma of the vertebræ, the first in the upper cervical region in a girl of six years. The symptoms were mistaken for those of cervical Pott's disease, and a swelling in the right suboccipital region due to a solid tumor was taken for an abscess. The child died in two months. The second case, in a lady of twenty-four, was in the lumbar region, and there was a swelling in the left iliac fossa resembling an iliac abscess, which also proved to be a solid tumor. Carcinoma of the vertebræ is characterized by agonizing pain. Syphilitic disease of the spine the author believes to be very rare; he relates one case in an adult.

The Early Diagnosis of Hip Disease.—In a careful paper (*Practitioner*, June, 1893) Howard Marsh asserts that the early diagnosis of hip disease is not always easy, and that no one symptom is pathognomonic, but that the grouping of symptoms

is characteristic. The symptoms are lameness, pain, altered position, impaired movement, muscular wasting and swelling. Pain or lameness or both may be entirely absent, and even impaired movement is occasionally wanting. The lameness due to hip disease is variable, and may at times disappear. Pain is not very rarely entirely absent, and is generally slight in the early stages; it may be in the hip, groin, knee, or inner side of the thigh. The characteristic position is abduction, eversion, and flexion, which may, however, be slight and difficult to detect without a critical examination. Impaired movement is the most important symptom. It is useful to test the sound limb first. Flexion is usually diminished, but the rotation test is more delicate. The author fails to draw attention to the altered quality of the motion, due to muscular spasm, which to a practiced touch is the most characteristic symptom of all. Muscular wasting is marked within three weeks. Swelling is usually masked by the thick coverings of the joint. After a few days' rest in bed the symptoms may almost entirely disappear.

Nearly every one of the symptoms mentioned may be due to other causes.

Excision of the Hip.—Dr. Sherman, of San Francisco (*Occidental Med. Times*, November, 1893), gives an interesting analysis of his experience in the treatment of hip disease. In eight years he saw a hundred and forty-six cases of hip disease, of which forty did not remain for continued treatment.

Forty-two were treated conservatively with the following results:

Recovery with perfect function, seven; recovery with imperfect function, ten; died of tuberculosis, four; still under treatment, twenty-one.

Sixty-four cases were excised, of which six could not be traced; of the remaining fifty-eight cases there were: Recoveries, thirty-two; deaths, thirteen; still under treatment, thirteen.

The causes of death were: One from chloroform during a secondary operation; two from shock; five from tuberculosis soon after the operation; five from tuberculosis later.

In the thirty-two cases (two with disease of both hips) that recovered, the average shortening was about two inches, and the motion and position were better than in the ten non-operative cases reported as imperfect recoveries. In twenty-four of the excised cases the limp was noted; in five it was bad, in five medium, and in fourteen slight. Four use crutches and one a cane.

Bone Operations for Clubfoot.—A careful analysis of four hundred and thirty-five bone operations for the correction of clubfoot, performed by a hundred and eight operators, has been given by Dr. H. A. Wilson (*Am. Med.-surg. Bulletin*, Feb. 1, 1894). There were seven deaths: three from septicæmia, three from diarrhoea, and one from carbolic-acid poisoning. In one case the foot had to be amputated for gangrene, and two cases are described as failures without explanation. The age of the patients ranged from three weeks to forty-seven years; twenty-nine operations were done on patients under two years, a hundred and twenty-six under six, and two hundred and thirty-four under ten. Simple excision of the astragalus was done a hundred and fifty-six times, and sixty-eight forms of bone operation were practiced on the remaining cases. As to after-treatment, "it is stated that braces or some form of apparatus or support were required in nearly all the cases here recorded." The results of operation are given under numerous heads, but two hundred and thirty-one may be grouped as good or excellent, a hundred and fifty-five as not definitely stated, and forty-two as not benefited, including two amputated for pain, and seven deaths as before stated. The author, in ac-

cord with recent experience, states his belief that cases of congenital clubfoot properly treated from birth will never require any form of tarsectomy, and that even in relapsed and neglected cases the percentage "suitable for bone excision is extremely small." Twenty-nine orthopædists and surgeons reported that they had never done any bone operations for clubfoot.

The Treatment of Clubfoot by Manual Correction.—Interesting as evidence of the spread of mechanical methods in the treatment of congenital equino-varus, is a paper by Dr. Nicholas Hagman, of Moscow (*Revue d'orthopédie*, November, 1893). He recommends that treatment be begun at the beginning of the second week after birth, and employs forcible manual correction, after rubbing the member with oil; afterward the improved position is maintained by a bandage. Complete reduction of the varus element is obtained inside of a week even in severe cases. After twenty-four hours the bandage is removed, and replaced after massage and passive movements. This is repeated until the deformity is considerably reduced, when a plaster bandage is applied over the flannel bandage. In seven to ten days it is removed, and repeated, if necessary, after an equal interval of massage, exercise, and bandaging. After this the foot is put up in a leather splint, and rubbed and manipulated by the mother. If, when the child begins to walk, the sole is placed squarely on the ground and used naturally, the cure is complete; if not, the application of plaster must be repeated with intervals of a week or ten days for massage and exercise. The equinus element is more difficult to overcome than the varus. Massage and exercise and the proper application of shoe must be carefully followed up till the gait is normal. The children continue to walk for four or five years with the toes turned in, but this disappears gradually. In the ordinary forms of infantile clubfoot the author has never seen this treatment fail. The author remarks that the surgeon must not be unnerved by the cries of the child.

Manual Correction of Genu Valgum.—Dr. Möhring reviews (*Zeitschrift f. orthopädische Chirurgie*, vol. iii, No. 1) A. Zuffi's method of forcible manual correction of genu valgum. The latter prefers it to osteotomy or treatment by apparatus, unless the patient is over eighteen years, or the deformity is exceptionally resistant or severe, when an osteotomy is preferred. The author says the method is safe and sure, and that relapses are very rare; in eight hundred cases the external lateral ligament was never ruptured. The patient is laid on a table, with the affected side up, and the hip and knee of the opposite side well flexed. A block with a raised edge is placed under the internal femoral condyle. One assistant stands in front of the patient and fixes the pelvis by grasping the upper iliac crest with one hand and the flexed knee of the opposite side with the other. Another assistant stands behind and presses over the great trochanter, to prevent injury to the hip, and over the external condyle to give purchase to the operator, who, grasping the leg by the calf with one hand, and above the ankle by the other, gradually forces the leg into the correct position, taking care to keep it fully extended. A snapping sound indicates the separation of the epiphysis. The leg is put up somewhat overcorrected in a plaster dressing.

Hoffa's Operation for Congenital Hip Luxation.—A death from septicæmia following Hoffa's operation for congenital hip luxation is reported (*Revue d'orthopédie*, January, 1894) by Kirmisson. This is Kirmisson's second fatality, and others have been reported by other operators, so that the operation appears to involve some risk.

Rhachitic Torticollis.—Three cases of torticollis are reported by G. Phocas, of Lille (*Revue d'orthopédie*, January, 1894), in rhachitic children of ten, fifteen, and eighteen months. The head was strongly inclined to the left, the chin was ele-

vated, and the face turned a little toward the right. There was no contraction of the sterno-mastoid, and the head was easily replaced, but resumed its vicious attitude when support was withdrawn. Later the head was thrown back, and this backward tipping was harder to correct than the lateral tilting. Pain was not severe, but the children were peevish, and resisted examination. The lateral deformity lasted about three months, and the posterior also disappeared after a time. The treatment consisted in the administration of phosphorus, brine baths, attention to diet, and a caoutchouc collar to keep the head in position. The author suggests vertebral softening and weakening of muscles and ligaments as the cause of this trouble, and also that fetal rickets may be the cause of some cases of congenital torticollis.

Faradism as a Joint Analgesic.—It has been noted by Drosdoff that rheumatically inflamed joints are anæsthetic to the strongest faradaic currents; after the passage of a current, joints which were previously extremely sensitive can be moved and handled. This property is utilized by Winternitz (*Blätter f. klin. Hydrotherapie*, January, 1893) to prepare rheumatic patients for water treatment.

Douglas Graham advises (*Practitioner*, August, 1893) strong faradism to joints for the relief of pain following on the breaking up or stretching of adhesions. In manipulations to increase motion in stiffened joints, he first tires out the opponents of the weaker muscle, when the latter is able to produce a greater effect on the joint; utilizing the physiological principle that by increasing the contraction of a muscle its power of relaxation is also increased.

Recording Scoliosis.—Dr. Weigel, of Rochester, N. Y., describes (*Am. Med.-surg. Bull.*, November, 1893) a simple apparatus for recording the curve of rotation—horizontal dorsal contour—in scoliosis.

Infantile Paralysis.—An admirable analysis of seventy-five cases is given by Dr. Anna M. Galbraith (*Am. Jour. Obst.*, Nos. 192, 193, 194). There were forty-seven boys and twenty-eight girls. The age ranged from birth to five years, the average being about twenty-one months. Overexertion, especially in learning to walk, was believed to be the exciting cause in many cases. In every one of the seventy-five cases, at least one lower extremity was involved; in two thirds of the cases both lower extremities were affected, and in thirteen per cent. an upper extremity; of the latter all but three ended in recovery. In one third of the cases the attack occurred during the eruption of teeth. In forty-seven cases the season of the attack was noted, and in seventy per cent. of these it occurred in July, August, or September.

Of sixty-four cases in which the cause is given, traumatism occurred seven times; three cases were due to sudden chilling of the body; two followed measles, one varicella, three diphtheria, two bronchitis, and one pneumonia. The author finds these patients pale and emaciated, and often with enlarged glands, catarrh, and eczema. Of twenty cases, dentition was delayed in twelve; and of thirty cases, thirteen walked late. Rather more than half had been healthy before the attack; but of seventy-two only twelve remained healthy afterward.

Out of sixty-four cases, there was a history of phthisis in some relative in twelve; alcoholism in three; nervous diseases in but a small percentage. Out of twenty-seven cases, the disease was properly diagnosed at the time of the attack in but two.

The mode of onset is given in sixty-nine cases; with fever, lasting from twelve hours to three weeks, but without coma or convulsions, forty-five per cent.; fever, with coma or convulsions, twenty-two per cent. Severe initial symptoms indicate a severe initial as well as permanent paralysis. The fever is

probably due to the inflammatory process in the cord. Treatment of attack: Calomel, leeches, ice bags to spine, and diaphoresis. In the chronic stage, measures to improve the general health are indicated, and locally, heat, massage, stretching, electricity, and mechanical support (brace). "The last is of the greatest importance, for by it the limb is kept in proper position, stretching of the paralyzed muscles and displacement of joints with relaxed ligaments are prevented. Further, a child who can not walk at all without it is able to walk with comparative ease with its brace, and so not only is the affected limb exercised, but the whole body is benefited." Electricity, especially galvanism, is useful, but "if too strong a current is used, or the application too long continued, actual harm may be done." The author concludes that even long-standing cases improve under regular and persistent treatment (two or three visits a week for many months) where galvanism causes a fair contraction of the muscles. "But the earlier the case is undertaken, the more hopeful will be the prognosis."

Miscellany.

The Bacillus of the Chinese Bubonic Plague.—The *Lancet* for August 25th contains an article on this subject by Professor S. Kitasato, who gives an interesting account of this disease and its bacteriological character. The bacilli, he says, are to be found in the blood, in the buboes, in the spleen, and in all other internal organs of the victims of the plague. The bacilli are rods with rounded ends, which are readily stained by the ordinary aniline dyes, the poles being stained darker than the middle part, especially in blood preparations, and presenting a capsule sometimes well marked, sometimes indistinct. The bacilli found in the spleen are best stained by a solution of methyl blue. The bacilli show very little movement, and those grown in the incubator, in beef tea, make the medium somewhat cloudy. The growth of the bacilli is strongest on blood serum at the normal temperature of the human body. Under these conditions they develop luxuriantly, and are moist in consistence and of a yellowish-gray color; they do not liquefy the serum. On agar-agar jelly they also grow freely. The different colonies are of a whitish-gray color, and by a reflected light have a bluish appearance; under the microscope they appear moist and in rounded patches with uneven edges—at first they appear everywhere as if piled up with "glass-wool," and later as if having dense, large centers. If a cover-glass preparation is made from a cultivation on agar-agar, and, after having been stained, is observed under the microscope, long threads of bacilli are seen which might, on careless inspection, be mistaken for a coccus chain, but are recognized with certainty as threads of bacilli under closer observation. The growth on agar-gelatin is similar to that on agar-agar; in a puncture cultivation at the ordinary temperature after a few days they are found growing as a fine dust in little points alongside the puncture, but with very little growth on the surface.

Dr. Kitasato experimented on animals and found that mice, rats, guinea-pigs, and rabbits were susceptible to inoculation. If they are inoculated with pure cultivations, or with the blood of a patient in which the bacilli have been observed, or with the contents of a bubo, or with pieces of the internal organs, or even with the contents of the intestine, they become ill in from one to two days, according to the size of the animal. Their eyes become watery; they show disinclination for any effort; later they avoid their food, and hide quietly in a

corner of the cage. The parts around the point of inoculation are infiltrated with a reddish, gelatinous exudation, the spleen is enlarged, sometimes there is swelling of the lymphatic glands, and bacilli are found in all the organs. The results found after death in animals are very similar to those found in anthrax and in œdema malignum. Pigeons do not appear to be susceptible to the influence of the bacilli.

The recent outbreak in Hong Kong, says the author, has given an opportunity of studying this disease with the means which modern science has placed in our hands. The principal symptoms are the following: After the period of incubation, which lasts from three to five days, the patient complains of high fever and swelling of one or more of the lymphatic glands. These swellings may precede, accompany, or follow the rise in temperature, and are accompanied with severe pain. The gland most commonly affected is one of the femoral chain; next an inguinal, and then an axillary, and sometimes a cervical gland is affected. The tongue is coated with a grayish-white or dark-brown heavy fur. There are headache and delirium, the heart is generally affected, and occasionally vomiting and diarrhoea are present. The two last conditions are generally forerunners of a fatal issue. In patients who recover, the temperature does not fall until a week has passed, and convalescence is a slow process. Sex and age make no difference in the disease; all are equally attacked. It is not always an easy matter, says the writer, to demonstrate the presence of the bacilli directly in the blood of many patients; they are sometimes present in such small numerical strength that only after examining several slides can they be discovered. In order to be safe, not only must the blood of a suspected patient be examined, but a cultivation should also be made. In the buboes the bacilli always occur in the form of pure cultivations, but it is not always easy to procure a specimen of bubo contents from the living subject, and the question arises, Is it possible to make a diagnosis from an examination of the blood of the patient? In many cases Dr. Kitasato thinks it is, but, he says, a good deal of bacteriological practice is required, or such a diagnosis is impossible. In the blood of human beings suffering from bubonic plague there is a new bacillus possessing the following qualities: 1. This bacillus occurs in the blood, in the buboes, and in the internal organs of the plague-stricken only. 2. This bacillus is not to be found in any other infectious disease. 3. With this bacillus it is possible to produce in animals the identical symptoms which the disease presents in human beings. We may suppose, says the author, that they have three principal channels of entrance: by respiration, through an external wound, and by the intestinal tract. Examples of the latter way are not positive so far, but, as bacilli were found in the intestinal canal, and experiments on animals proved that feeding alone produced definite results, it must be conceded that the third way is a possible method of infection.

The means to be employed against the plague should be preventive measures, general hygiene, good drainage, perfect water supply, cleanliness in houses, and cleanliness in the streets. After a patient has apparently recovered, he must be kept apart from others for a period of a month, for during convalescence the bacilli may be discovered in the blood from three to four weeks after all symptoms have ceased.

Cancer in Normandy.—The *Gazette de gynécologie* for August contains an account of the result of an inquiry made by Professor Brunon, of the *École de médecine* of Rouen, who had prepared a series of questions for the physicians of Normandy on the different points relative to the history of cancer. He had been impressed with an article published by M. Arnaudet in the *Normandie médicale*, in 1889, in which that author had

shown that, in his district, the disease was much more frequent than elsewhere. In studying also each street, and particularly each house, M. Arnaudet had shown that there had been real contagion in the water and in the dwellings.

In the *Presse médicale* for January 20, 1894, M. Brunon had published a summary of the answers of these physicians. Their opinions were in direct opposition to the theory which had led him to undertake this work. All that could be said was that, aside from some places in this region where cases had accumulated, a fact which a small number of physicians had explained by contagion, cancer had not appeared to be more frequent in this province than anywhere else. The only influence that appeared undeniable in them all was heredity. A large number of physicians were instinctively in favor of the theory of contagion, but not one of them could give a good example in which it had been observed. The result, therefore, of this clinical inquiry had failed to show the parasitic character of cancer.

The American Public Health Association.—The twenty-second annual meeting will be held in Montreal, Canada, in the Association Hall, Y. M. C. A. Building, Dominion Square, on September 25, 26, 27, and 28, 1894, under the presidency of Dr. E. P. Lachapelle, of Montreal. The following subjects will be discussed: The Pollution of Water Supplies; The Disposal of Garbage and Refuse; Animal Diseases and Animal Food; The Nomenclature of Diseases and Forms of Statistics; Protective Inoculations in Infectious Diseases; National Health Legislation; The Cause and Prevention of Diphtheria; The Causes and Prevention of Infant Mortality; The Restriction and Prevention of Tuberculosis; Car Sanitation; and The Prevention of the Spread of Yellow Fever.

The executive committee announces the following additional subjects: The Education of the Young in the Principles of Hygiene; The Private Destruction of Household Garbage and Refuse; The Disinfection of Dwellings after Infectious Diseases; and The Inspection of School Children with Reference to the Eyesight.

The special committees are: Publication Committee.—Dr. Irving A. Watson and Dr. Granville P. Conn, of Concord, N. H.; Dr. Samuel W. Abbott, of Wakefield, Mass.

On the Pollution of Water Supplies.—Major Charles Smart, U. S. A., of Washington; Professor Victor C. Vaughan, of Ann Arbor, Mich.; George W. Fuller, B. S., of Lawrence, Mass.; Dr. Maurice Perkins, of Schenectady, N. Y.; Dr. José Ramirez, of Mexico, Mex.; and Dr. Wyatt Johnson, of Montreal.

On the Disposal of Garbage and Refuse.—Rudolph Hering, C. E., of New York; Professor Delos Fall, of Albion, Mich.; Dr. Louis Laberge, of Montreal; Dr. Edward Clark, of Buffalo; and Dr. Juan J. Ramirez de Arellano, of Mexico, Mex.

On Animal Diseases and Animal Food.—D. E. Salmon, D. V. M., of Washington, D. C.; Professor James Law, of Ithaca, N. Y.; Professor José L. Gomez, of Mexico, Mex.; Dr. Henry F. Hoyt, of St. Paul, Minn.; Dr. Pinckney Thompson, of Henderson, Ky.

On Nomenclature of Diseases and Forms of Statistics.—Dr. Samuel W. Abbott; Dr. Jesus E. Monjaras, of San Luis Potosi, Mex.; Dr. Elzéar Pelletier, of Montreal; Professor Charles A. Lindsley, of New Haven; Dr. Charles N. Hewitt, of Red Wing, Minn.

On Protective Inoculations in Infectious Diseases.—Surgeon-General George M. Sternberg, U. S. A., of Washington; Professor Victor C. Vaughan, of Ann Arbor, Mich.; Dr. George F. Nuttall, of Baltimore; Dr. M. Carmona y Valle and Dr. Augustin Reyes, of Mexico, Mex.

On National Health Legislation.—Dr. Henry P. Walcott, of Cambridge, Mass.

On the Cause and Prevention of Diphtheria.—Dr. George C. Ashmun, of Cleveland; Dr. Peter H. Bryce, of Toronto; Dr. Juan J. Ramirez de Arellano; Dr. John H. McCollom, of Boston; Dr. Mendoza Lopez, of Guadalajara, Mex.

On the Causes and Prevention of Infant Mortality.—Dr. Charles N. Hewitt.

On the Restriction and Prevention of Tuberculosis.—Dr. J. N. McCormack, of Bowling Green, Ky.; Dr. Lawrence F. Flick, of Philadelphia; Dr. Henry B. Baker, of Lansing, Mich.; Dr. Eduardo Licéaga, of Mexico, Mex.; Dr. J. A. Beaudry, of Montreal.

On Car Sanitation.—Dr. Granville P. Conn, of Concord, N. H.; Professor W. W. Daniels, of Madison, Wis.; Dr. R. Harvey Reed, of Mansfield, Ohio; E. C. Jordan, C. E., of Portland, Me.; Dr. Domingo Orvananos, of Mexico, Mex.

International Committee on the Prevention of the Spread of Yellow Fever.—Dr. Felix Formento, of New Orleans; Surgeon-General George M. Sternberg, U. S. A.; Dr. Eduardo Licéaga; Dr. M. Carmona y Valle; Dr. Jérôme Cochran, of Mobile, Ala.; Dr. Samuel R. Olliphant, of New Orleans; Mr. Alfred V. Wood, of Brunswick, Ga.

On the Centennial of Vaccination.—Dr. Joseph M. Toner, of Washington; Dr. T. Grange Simons, of Charleston; Professor Charles A. Lindsley, of New Haven; Dr. Angel Contreras, of Puebla, Mex.; and Dr. R. Harvey Reed.

On Incorporation.—Dr. E. P. Lachapelle, of Montreal; Dr. Irving A. Watson, of Concord, N. H.; Dr. Henry D. Holton, of Brattleboro, Vt.; Major Charles Smart, U. S. A.; Deputy Surgeon-General John S. Billings, U. S. A.; Medical Director Albert L. Gihon, U. S. N.; Dr. Smith Townsend, and Dr. Walter Wyman, of the Marine-Hospital Service.

The Action of Iodoform in Certain Forms of Lupus.—At a recent meeting of the *Société française de dermatologie et de syphiligraphie*, a report of which appears in the *Province médicale* for August 25th, M. Brocq made the following communication: He had known a patient who had had tuberculous lupus non exedens of the right cheek for a long time; it had been very persistent, and its progress had been gradual and extended. At the same time the patient had shown lesions of typical erythematous lupus on the fingers. M. Brocq had used iodoform and the eruption on the hands had disappeared at the end of a certain time, but had reappeared when the treatment was discontinued. It seemed that, with the tuberculous lupus, there had been toxines which had poisoned the organism and had caused this eruption on the hands, and the absorption of the iodoform had combated the general intoxication, consequently causing the eruption to disappear. M. Brocq had seen another patient who had suffered with this disease, and he had tried the same treatment and had obtained equally good results.

Psoitis and Appendicitis.—The *Lyon médical* for August 26th contains a report of a recent meeting of the *Société des sciences médicales de Lyon* at which M. Gangolphe read a paper on this subject. He said that appendicitis had been a frequent cause of suppuration of the psoas. Clinical examinations had shown that psoitis might sometimes follow appendicitis, and sometimes it had shown itself alone, and it had been only by the appearance of intestinal pus, mucosity, bile, and faecal matter that later on its origin had been recognized. This appendicular origin might vary; the muscular abscess had sometimes remained limited to the region around the cæcum, to the intra-abdominal part of the psoas. This had occurred in a patient who was presented by M. Gangolphe. It might also be accompanied with complete suppuration, with total breaking

down of the psoas. In this case the classic incision used in appendicitis was not sufficient; incisions in the inflamed part of the psoas must be made. M. Gangolphe had, besides trephining the pelvis, advocated a posterior crural incision near the lesser trochanter. By means of incisions made above the iliac crest posteriorly, and of anterior and posterior cruro-abdominal incisions, the cavity of the psoas had been completely drained. The tract where the drains had been placed had sometimes remained fistulous for a long time, in consequence of the passing of the intestinal liquid. In the patient presented by M. Gangolphe, the fistulous passage had a depth of from fifteen to eighteen centimetres and was situated between the remains of the psoas and the iliac vessels, which passed in front. M. Gangolphe had made a careful dilatation at the end of four months and kept up the drainage energetically. In another case he had obtained the same success in the same way. If this method had failed, he said, the peritonæum would have had to be opened and the perforated intestine found, which was certainly a delicate and perilous procedure.

The Nature of So-called Follicular Amygdalitis and its Relation to Infectious Disorders.

—At a recent meeting of the British Laryngological Association a paper was read by Dr. Norris Wolfenden which appears in the *Journal of Laryngology, Rhinology, and Otology* for August. The author remarked that the five varieties of amygdalitis described by Wagner could be reduced to two clinical forms: 1. Superficial or follicular amygdalitis. 2. Deep or parenchymatous amygdalitis. The first variety was regarded as a milder form of amygdalitis in which the follicles exuded a white secretion which adhered to the point of exit. This secretion bore some resemblance to the false membrane of diphtheria, but possessed neither texture nor adherence, and could easily be wiped off the surface of the glands. With regard to the mild or catarrhal form of diphtheria, Mackenzie had alluded to the bright-red mucous membrane upon which appeared "minute accumulations of yellowish matter, not much larger than a pin's head, which adhered to the surface of the tonsils or to the posterior wall of the pharynx" and might readily be removed with a camel's-hair brush. A quick recovery was the rule, although there was great prostration during the illness, and weakness after. There was sometimes a trace of albumin in the urine, but occasionally "the first evidence of the true nature of the throat affection was the occurrence of the characteristic paralysis. The appearance of one or the other of these symptoms often formed the only clew which the physician had to the nature of the primary affection, which in all other respects closely resembled a simple sore throat." A severe type of diphtheria might, however, be ingrafted upon this mild form. None of these points, said the author, were characteristic of true diphtheria. Bosworth had described follicular amygdalitis as a "croupous" amygdalitis, and an endeavor had been made to uphold the historical difference between croupous and diphtheritic membranes, which must be regarded as rather unfortunate, as the use of these two terms had led to much confusion in the past, and the significance of their distinction had disappeared in the face of modern pathology, and especially bacteriology. That follicular amygdalitis should be "croupous" in the sense of there being fibrin in the exudation scarcely justified its distinction of "croupous" as opposed to "diphtheritic," since the occurrence of fibrin merely indicated the extent of the injury. The occurrence of the membrane of diphtheria itself was not distinctive, since numerous caustics might produce identical membranes. Moreover, they occurred under various conditions—*e. g.*, in herpes, in scarlatina, in syphilis, etc.—they might be produced by various micro-organisms, and were only to be regarded as truly diphtheritic

when they were associated with a special bacillus. If fibrin was exuded into the tonsillar crypts, it was, therefore, only a sign of a certain intensity of inflammation, and Dr. Wolfenden thought it was a pity to go back to the use of a term which might be misleading. Many of the distinctions that had been given between diphtheritic and croupous membranes had a certain clinical value, but little pathological importance, and it was therefore better to avoid the use of such a term as "croupous."

Jacobi had stated that follicular amygdalitis was really diphtheria—a view, said the author, which few would be found to support. Koplik had described several cases of lacunar diphtheria, which would lend some support to these views, but in eighteen cases out of thirty-nine examined for lacunar diphtheria, and all presenting the typical appearance of acute lacunar amygdalitis, only staphylococci and streptococci had been found. The term "follicular" was really erroneous, since it was not the follicles of the tonsils that were affected, except in a very secondary manner and in a few cases. It was the tonsillar crypts or lacunæ which were the chief seat of the disease, and a more correct name for the condition was that used by Sokolowski and Dmochowski, viz., *amygdalitis lacunaris chronica desquamativa*, which, when showing catarrhal exacerbations, became *amygdalitis lacunaris chronica desquamativa exacerbata*, and, when assuming the form of the infectious angina of the French writers, or the lacunar angina of the Germans, became, according to the Polish pathologists, *amygdalitis lacunaris pseudo-membranacea*.

The pathologico-anatomical condition of an enlarged tonsil explained an important factor in the ætiology of the type of amygdalitis referred to by the speaker. In such a tonsil varying degrees of softness or hardness were met with, the fibrous tonsils in which the lacunæ and crypts were compressed out of existence being the rarest. In the vast majority of cases a tonsil was met with which was enlarged in various directions, and soft, but of which only one condition needed to be referred to, the nature of the lacunæ. Sometimes the entrance into these lacunæ was wide open, and the lacunæ themselves were filled with semifluid contents. In harder tonsils the lacunæ were altogether smaller, with but little contents, generally of a gritty nature. The epithelium of the lacunar walls was hard, stratified, and cornified. Each lacuna had small follicles surrounding it, and the number and size of these varied with the degree of hardness or softness of the tonsil. Some of the lacunar walls appeared to be warty, which was caused by the pushing outward of the lacunar wall by enlarged follicles and by connective-tissue hypertrophy in the substance of the gland, or, as had been found sometimes, partial detachment of a very large plug of cornified epithelium. Sometimes the lacunæ were narrow at the orifice; others, again, were closed, presenting wide and broad spaces in their deeper parts. This closure had been brought about by acute catarrh, which had caused the union of the walls of the lacunar opening. Changes in the follicles and adenoid tissue were generally insignificant, the former being quantitatively and qualitatively increased and presenting bud centers in which caryocinetic forms had been observed. The contents of the lacunæ were a turbid semifluid material which could be pressed out of the tonsil, and consisted of masses of exfoliated epithelial cells and lymph corpuscles, in addition to which various micro-organisms occurred—staphylococci, streptococci, diplococci, and leptothrix. In one case Sokolowski had found actinomycosis. Such collections of matter in the tonsillar crypts or lacunæ, said the speaker, must act as foreign bodies, or irritants, and it could not be denied that in such places there could not possibly be better natural culture media for the development of micro-organisms. Common hyper-

trophy of the tonsils became, therefore, he said, a most important ætiological factor in the invasion of the system by certain infectious disorders.

Of three cases which Sokolowski had detailed, in which the tonsils had been removed, which had formed the basis of that author's histological examinations, all had presented apparently more or less identical symptoms—viz., shivering, fever, enlarged cervical glands, and isolated white-yellow spots on the tonsils, which had been apparently of lacunar origin, redness and swelling of the glands, and no recurrence after extirpation. Histologically, there had been found greatly widened lacunæ, with contents consisting of epithelial *débris* along with micro-organisms and a fibrinous network. There was no special change in the lymphoid tissue or the follicles, except that, upon double staining, many strongly colored cells of large and irregular form, containing large nuclei and resembling plasma cells, had been found in the follicles lying near the lacunæ and in the lymph-vessels and adenoid tissue. Another case, which had been examined by the Polish observers, was important from the fact that no pathological changes except slight catarrh had been found in the lacunæ, but the white-yellow mass on the surface of the tonsil, which lay thick over the lacunar openings and simulated secretion, had formed a really typical diphtheritic membrane of fibrin and lymph-cells with diplococci. These observers had concluded, however, that there had been the same essential process in all three cases—*i. e.*, fibrin in the lacunæ or on the surface, with pseudo-membrane, and superficial necrosis—the second case, however, being typically diphtheritic and therefore the most important as to the identity of these two processes (angina lacunaris and diphtheritis); the clinical symptoms were the same, the anatomical changes were the same, and the whole difference between them consisted in the localization of the process. If it occurred in the depth of the lacunæ, it was then typical angina lacunaris, and, as pathological anatomy showed no difference between the two processes, angina lacunaris must, according to these observers, be regarded as a pseudo-membranous catarrh. In Dr. Wolfenden's opinion such a wide-reaching conclusion as to the nature of the process could not be justified by merely anatomical findings. A doubt might be expressed whether the second case referred to had been in any sense a typical angina lacunaris, and not a mild form of diphtheritis, and it could not be said that the processes were identical without a careful bacteriological study of the cases. The presence of fibrin was merely indicative of the amount of local injury, and the speaker thought the term "pseudo-membranes" an unfortunate use of language.

With regard to the bacteriology of the subject, Dr. Wolfenden said that the organisms met with in amygdalitis were those commonly seen in suppurative processes—viz., *Streptococcus pyogenes*, the staphylococcus, and in a few instances the pneumococcus. Nothing, he said, was more certain than the presence of these organisms in the tonsillar exudation. There was reason to justify the term "streptococcal" angina which some French physicians had applied to this form of infectious amygdalitis, since it was to these organisms that were chiefly owing the lesions of visceral organs (endocarditis, swelling of joints, orchitis, oophoritis, enlargement of the spleen, etc.) which distinguished a general and infectious form of the same order from a simple cryptic amygdalitis. It was a question of the activity of these micro-organisms.

Bouchard and Kannenberg had stated the opinion that the albuminuria which occurred in certain anginas was due to a nephritis which had been set up by the effort to discharge from the organism the micro-organisms which had invaded it. It was now a matter of common knowledge that albuminuria, which had formerly been considered to be a point of difference

in the diagnosis of diphtheria from ordinary catarrhal amygdalitis, was no longer to be considered as evidence of a diphtheritic process. The fact was that it was rarely absent in cases of acute cryptic amygdalitis, and the speaker had observed its occurrence in many cases that had come under his care. Other lesions which might occur in cryptic amygdalitis were cardiac inflammations. Haig Brown had found cardiac murmurs in thirty three cases out of three hundred and forty-five of amygdalitis. They had commonly been mitral systolic, and had disappeared within three weeks. This was not a large proportion, but, if systematic examinations of the heart were made, these murmurs might be detected oftener. Affections of the respiratory organs were not so common in infectious amygdalitis, although pleurisy had been observed by several writers. Orchitis, sometimes with suppuration, oophoritis, arthralgias, skin eruptions, erythema nodosum, purpura, and polymorphous erythema had been observed. Phlegmonous adenitis might occur, and the enlargement of the cervical glands in acute cryptic amygdalitis was so common that one of the classical symptoms of diphtheria was no longer of value in diagnosis.

Dr. Wolfenden referred to the occurrence of paralysis in cases which had come under his observation in which the patients had presented very slight symptoms followed by evidences of severe intoxication of the system. In most of these cases he had made the most careful inquiry as to the possibility of such patients having been in contact with diphtheria. But there had been no proof of such infection, and it would be natural to conclude that the patient had been suffering from a mild attack of diphtheritis, although such a conclusion would scarcely be justified from the clinical course of the symptoms. In view of the fact that in an ordinary acute angina such a variety of micro-organisms developed, not only the streptococci and staphylococci, but the *Bacillus crassus sputigenus*, the cultures of which produced a powerful toxine, and the pseudo-Loeffler's bacillus, etc., a rule could not be laid down that severe intoxication of the neuro-muscular system, manifested by paralysis of greater or lesser intensity, must necessarily justify the diagnosis of diphtheria. The subject was one full of difficulty, which bacteriology alone could decide, and the time had not arrived when different forms of throat inflammations might be classified upon a bacteriological basis, but the author believed that such terms as "croupous," "diphtheritic," "diphtheroid," "membranous," etc., would be abolished. A bacteriological examination was required in all cases, so that experience might enable us to extend our observations and also to classify these various anginas according to bacteriological terminology, for, although they resembled diphtheria clinically, they were not diphtheria. He thought that the time was not far distant when the inflammatory conditions of the tonsils and the throat would be classified upon a bacteriological and not upon an anatomical or clinical basis. Clinical experience demonstrated how great might be the errors of diagnosis and prognosis in these obscure cases, which formed a large proportion of those that came under our care. These errors would be reduced to a minimum if a bacteriological diagnosis in these very common cases was systematically practiced.

Dr. Wolfenden gave the following conclusions: Starting with the assumption that there was no true diphtheria without Loeffler's bacillus, there was not necessarily diphtheria because there was a membrane or pseudo-membrane. That was in no sense characteristic of diphtheria, and might be produced by a variety of causes—injury from caustics, streptococci, etc. Lacunar amygdalitis was not lacunar diphtheria. There was a lacunar amygdalitis and there was a lacunar diphtheria, but they were not synonymous terms, although they presented much the same clinical appearance. Whether the local appear-

ances were of fibrin (or croupous), or of adherent membrane (or diphtheritic), did not make the condition either croupous or diphtheritic. It merely marked the extent of the local injury and the intensity of the process. Follicular, or acute, amygdalitis, which was the most interesting form, was not follicular at all. It was a simple or desquamative infection, due to streptococci, staphylococci, or pneumococci. It was also possibly contagious.

The clinical appearances alone allowed so little ground for a diagnosis of simple amygdalitis from diphtheria that, in the absence of bacteriological diagnosis, it would be wise to isolate such patients from the first, until the course of the disease rendered its nature positive. This was all the more necessary since the placing of patients with streptococcal pseudo-membranous throats in wards where there was diphtheria might convert a simple case into a fatal one. Bacteriology, then, said Dr. Wolfenden, should be the basis of the diagnosis, and no hospital or institution was complete without such an adjunct as a properly-equipped laboratory.

Superintendents of American Lunatic Asylums.—We lately quoted freely from an address delivered by Dr. H. Weir Mitchell, of Philadelphia, arraigning American asylum superintendents for their shortcomings. In the September number of the *Journal of Nervous and Mental Diseases* Dr. Livingston S. Hinckley, of the Essex County, N. J., Hospital for the Insane, at Newark, takes the position that superintendents, as a rule, are not to be blamed for the defects pointed out in Dr. Mitchell's address. After showing how political considerations often so prevail with boards of managers that everything connected with asylum management is made to yield to them, Dr. Hinckley remarks that, in view of the demoralizing consequences which the interference of frequently changing boards of managers entails, consequences fraught with perplexing difficulties, it is clear to the minds of impartial observers that Dr. Mitchell has been unduly severe in his criticism and condemnation of medical superintendents. He speaks of the "amazing lack of complete physical study of the insane, the oddly defective schedule guide to symptom notes, the failure to see obvious lesions, the want of thorough day-by-day study of the secretions in the newer cases, of blood-counts, temperatures, reflexes, eye-ground, color fields," and accuses asylum superintendents of fostering the superstition and "widespread belief that there is some mysterious therapeutic influence to be found behind the grim walls and locked doors of asylums for the insane." These charges, says Dr. Hinckley, can not be ignored. Such an unqualified arraignment is extremely unjust, and, if not refuted or explained, would be fraught with disastrous consequences to the public confidence imposed in these men. The high professional repute, the unimpeachable integrity, and the earnest fervor of his noble life work, says Dr. Hinckley, bear overwhelming testimony to Dr. Mitchell's sincerity of motive and honesty of purpose. To the student of insanity, who has had sufficient practical experience in its treatment to enable him to separate the useful and practicable remedies from the great mass of therapeutical fiction, Dr. Mitchell's ideal hospital for the insane savors of highly colored visions rather than of the careful, accurate suggestions of a scientist whose judgment had been molded by the experience of many years. Most assuredly, says the writer, the minute details of thorough physical examination of all cases of insanity would not only be of vast interest to scientists, but would serve as invaluable guides to rational treatment. In the violent wards of our public asylums, where there are fifteen patients to one attendant, it is evident that some sort of restraint becomes at times absolutely unavoidable, and the question involved is that of whether the restraint shall be of a

chemical or of a mechanical nature, and the introduction of a system of treatment which would enable alienists to treat successfully all cases of insanity without resorting to any form of restraint, either chemical or mechanical, would mark an epoch in the history of therapeutics, and would be regarded as the greatest triumph of modern medicine.

Mr. Ernest Hart and the Indian Medical Congress.—It seems that Mr. Hart, the editor of the *British Medical Journal*, has offended some of the medical men of India to such a degree as to lead the *Medical Reporter*, of Calcutta, to remark on the likelihood of Mr. Hart's being present at the congress to be held in Calcutta next December in the following terms:

"For Dr. Hart, and for his paper, we have the highest respect, but we desire to offer a protest on behalf of the whole of the non-official, and even some portion of the official medical profession, against Dr. Hart's strictures in his paper against their work in India. We are willing to believe Dr. Hart wrote on imperfect information—nay, we are even willing to admit that he wrote on prejudiced opinion supplied; but until he withdraws his ungenerous remarks on medical men of and in this country, it is meet that they should refuse to meet him in fellowship. This is no reflection on the congress scheme. This is no desire to hamper the efforts of those arranging for its holding. Our anxiety to support the congress can not be misunderstood; we only sound a note of warning that if Dr. Hart is elected as a prominent member of the congress it will give offence."

A Substitute for Milk as an Article of Food for the Sick.

—In the July number of the *Australian Medical Journal* there is a paper by Dr. J. W. Springthorpe entitled *A New Food for Use in Typhoid and Other Fevers* which was read at the June meeting of the Victorian Branch of the British Medical Association. The author remarks that since the time when Liebig's views were discarded, milk in some form or other has been almost universally recognized as the most suitable food for typhoid-fever patients. He thinks, however, that its disadvantages call for mention. In the first place, it fulfills but imperfectly the requirements of a fever food. The author cites Voit as having shown that three pints and a half of milk of good quality, containing from eight to ten per cent. of cream, although it satisfies a healthy adult doing no work, is deficient in the requisite amount of albumin, and, although it contains twice the necessary amount of fat, is wanting in carbohydrates to the extent of two thirds. If we hold that a fever diet should contain more carbohydrates and less albumin than a non-fever diet and be free from fat, we must conclude, he says, that the quantity of milk recommended by the best clinicians must fail to meet the requirements of a continued fever, even when some form of animal broth is added, and it is to this imperfection, he thinks, that we must ascribe some at least of the wasting observed in such fevers. In the next place, although milk is taken into the mouth in a liquid state, it becomes more or less solid in the stomach. The curdling may, no doubt, be diminished by appropriate dilution and admixture, but it is doubtful if it is ever prevented entirely, and practically it may be asserted that curdling very frequently occurs. The undigested curd represents so much lost albumin, while the curd, themselves are a frequent cause of rise of temperature, restlessness, diarrhoea, or other aggravations of an already serious if not dangerous condition. Moreover, milk is very apt to ferment after it is taken, resulting in distention and all the discomforts and dangers consequent thereupon. In addition, there are often difficulties attending its satisfactory administration. To a certain number of persons it is positively distasteful, while it disagrees more or less with most persons of the

large class having an hepatic temperament. Hence it must be diluted with alkaline waters, which favor the growth of the specific cause of the disease, or with effervescent waters, which aggravate the distention, or it may be peptonized, which is often difficult and frequently obnoxious. Furthermore, its purity is often so questionable that it has to be prepared for use by boiling, it often turns sour, and its condition prior to its administration can seldom be termed aseptic, while its composition, and hence its nutritive value, vary within wide limits. In addition, although, as compared with ordinary diet, milk, as has recently been stated, may lessen the number of micro-organisms in the intestine, still the fact remains that the bacillus of Eberth can and does grow even in sterilized milk. Finally, as milk is incompatible with acids, its ordinary administration hampers the use of acid medication, even if it does not entirely prevent it.

Having learned of M. de Bavay's discovery that a sterilized hopped malt extract was superior to either broth or milk in its power of resisting the growth of Eberth's bacillus, the author was led to consider its suitability as a substitute for milk, and his first step was to compare its composition with that of milk. Analysis showed that it consisted of soluble carbohydrates, peptones, parapeptones, amides, a small proportion of ash rich in phosphoric and lactic acid, and the extract of hop. The carbohydrates are represented by maltose, dextrose, levulose, and dextrin. The entire extract amounts to fifteen per cent., which is about the same as in good cow's milk. The ash is 0.25, and the average proportion of lactic acid is 0.18. He estimated that there were from eight to twelve grains of lupulin in three pints of the extract. This analysis, though not exhaustive, was enough to suggest that hopped malt extract was probably superior to milk in nutritive value, was sterilized, and had all its active principles predigested, while it was not incompatible with acids and contained a moderate dose of a recognized sedative.

The malt extract was next tested clinically during an epidemic by using it in forty consecutive cases occurring during a period of six months. Its favorable action soon became so apparent that whenever there was any temporary difficulty in maintaining a supply it was reserved for the worst patients, and those whose illness was not so severe were put back upon the use of milk. After the extract was sterilized the bottles were kept on their sides until they were opened, and no bottle was used that had been open twenty-four hours. The patient was given five ounces of the malt every two hours. In addition, he had ice, iced filtered water, and from half a pint to a pint of a drink consisting of a drachm and a half of diluted phosphoric acid in a pint of water. Sponging was used as an antipyretic, and when that failed quinine. Stimulants were used according to the indications, and complications were treated in the usual way. Some internal antiseptics were attempted by means of carbolic acid or boric acid in addition to the acid contained in the food and in the drink.

"From the test thus applied," says Dr. Springthorpe, "I venture to draw the following conclusions:

"(1) We have in this sterilized hopped malt extract a food which can replace milk in the treatment of 'typhoid' fever. Here is a series of some forty cases which had practically no other food during the weeks that they were under treatment in the hospital. As the accompanying charts show, in twenty cases the fever ran a course of about four weeks, and in four the fever lasted over six weeks. In six there was pneumonia as a complication; in five, intestinal hæmorrhage; in one, pleural effusion; and in another, phlebitis. In six there was a typical and in one a doubtful relapse. It can not be said, therefore, that the cases thus treated were of less than average severity.

"(2) This new food has many advantages over milk. Thus its composition may be made definite; it is easy to keep and to administer; there is no risk of souring; no need of peptonizing or of adding alkalies or effervescents; and it goes naturally with acids.

"(3) In many ways it meets the requirements of the case better than milk. Thus the active principles are predigested, the carbohydrates predominate, fat is absent. Again, with its use there is no such thing as curdling. Throughout the series the motions were apparently intestinal secretion tinged with malt; there is no loss of albumin and no irritation of the intestine. And it is noteworthy that, on several occasions, when a few doses of peptonized milk had to be substituted for the malt, some patients at once passed curds with their stools. Further, the food remains unfermented throughout the intestine. It was partly to assist this, and partly from its own merits in typhoid antiseptics, that boric acid was given with the malt. As a matter of fact, in no single case did we have any distention—an occurrence without parallel in my experience of the previous six epidemics, and one too good almost to expect always in the future. Again, some influence was exerted upon the reaction of the stools, and hence, in all probability, upon the reaction of the intestinal contents also. Thus, though we were unable to obtain permanent acidity, the stools became actually acid on four occasions, when the bowels were open several times in rapid succession, and in a large number of cases the reaction was altered from alkaline to neutral. No doubt the addition to the food produced much of this change; still, the food helped.

"(4) It exerts upon the disease a beneficial influence which is not found in the case of milk. Thus its influence upon the nervous system was very marked. Sleep was undoubtedly promoted. Instead of insomnia, requiring the use of dubious sedatives, most of our patients slept in a manner and degree which was as gratifying as it was surprising. The average slept over seven hours; many slept nine hours and over; one very severe case slept twelve hours. No doubt most of this benefit must be ascribed to the lupulin, and its usefulness is so suggested that M. de Bavay has isolated for me the alkaloid (hitherto unused clinically) for further testing. Still, some at least of the good may be due to the better feeding of the case by the new food. Again, a beneficial influence was seen in our temperature curves, thirty-eight of which are exhibited this evening for your further study. Not that there is any noticeable shortening of their duration (as well expect a runner to give a competitor fifty yards' start in a hundred, as shorten the last three weeks' temperature of a disease which has had three weeks' start). In all, however, you will notice that the remissions began at once, no matter what the stage of the disease, and, except in the fatal cases, they continued throughout. I am told also that our curves were, on the whole, noticeably below those of other patients in the hospital during the same time and on milk diet. It is, of course, impossible to append all these charts to the present copy of my paper, but instances are selected which illustrate the points referred to. Of course, it must not be understood that all were equally influenced; still, all were apparently influenced, and many quite as much as those here shown. The reports of the Sisters in charge of the nursing arrangements are also favorable to the malt extract. Not unnaturally, the change from milk to malt was at first viewed with something more than suspicion, but before the end of the epidemic the nursing report was that without any doubt it was much easier to nurse the cases on the malt, and much easier also to keep them clean. And, generally, from a careful watching and comparison, my own conviction is that, taken as a whole, the patients on the malt seemed stronger during the illness, were less wasted, and con-

valesced better than similar patients under the milk *régime*. It will require, however, further evidence before this can be regarded as definitely proved."

As to the question of objections to the use of this food, the author states that, inasmuch as it is a liquid and deficient in proteids, it is not very satisfying to those who are accustomed to a more solid and stimulating diet or who crave it, but he has not found that it is less satisfying than milk—if anything, the contrary is the case. Some dislike its sweet taste, but this may generally be overcome readily by washing the mouth with an acid solution or by sucking a small piece of ice. There is the theoretical objection, says the author, that such a food may drive germs from the contents of the intestine into the intestinal tissue; but, though certain of his charts showed a fall of temperature followed by a somewhat suggestive rise, the meaning of which, he says, requires further consideration, the general results show that there is nothing serious in the objection.

The author gives the following directions for making sterilized hopped malt extract: Infuse crushed English barley malt with twice its weight of water at a temperature of 165° for two hours. The mash produced should be at a temperature of 151°. After draining, the sweet wort is run off and "sparged" with water at a temperature of 170° until the malt is perfectly extracted. It is then collected in the copper, and, when saccharification is complete, saccharose sugar is added to bring about inversion into dextrose and lævulose by the diastase of the malt. The contents of the copper are brought to the boiling point, and after boiling for half an hour to precipitate the albuminoids thus removable, hops are added and the boiling is continued for an hour and a half. The tannin of the hops precipitates a further portion of the crude albuminoids. This wort is then run over a large quantity of raw hops to extract from them an additional amount of the essential oil and other volatile constituents of the lupulin. In all, twelve pounds of hops and a hundred and fifty pounds of sugar are used to each quarter of malt. The extract is then bottled, corked, and put into a steam bath at a temperature of 212° and kept at that temperature for two hours. After removal, as soon as the bottles are lukewarm, they are laid on their sides. If this had been done before, the vacuum formed during cooling would have given rise to an explosion. If good corks are used, the filtration through them is sufficient to sterilize any air that may enter, and if the bottles are left on their sides contamination does not occur. The bottles are now ready for use. If they are kept, a further precipitate is produced by the oxidation of the albuminoids, but this can easily be separated, if desired, by filtering the last portion before it is used. Assuming that only half the lupulin of the hops is extracted, there are eight grains and a half of lupulin in three pints of the extract.

The Treatment of Vomiting in Children.—The *Journal de clinique et de thérapeutique infantiles* for August 23d publishes the following directions and formulas to be used in the treatment of vomiting in children: Very young children should be made to swallow small pieces of ice before nursing. Milk diluted with a little Vals or d'Alet water should also be given. Before the child is nursed, three grains and three quarters of bismuth subnitrate should be put on its tongue. The diet should be restricted, the milk sterilized, and the time of nursing properly regulated. For older children, iced drinks, ice, and effervescent waters are recommended. A teaspoonful, each, of the following mixtures is to be taken, beginning with the first: 1. Potassium bicarbonate, thirty grains; syrup, two hundred and twenty-five grains; water, an ounce and a half. 2. Citric acid, thirty grains; syrup of citric acid, two hundred and twenty-five grains; water, an ounce and a half.

Fonssagrives recommends the following: Essence of cajuput, from six to twelve drops; sugar, thirty grains. When this is thoroughly mixed, add an ounce of syrup of tolu and three ounces of Melissa water. From a teaspoonful to a tablespoonful is to be taken every hour. Huchard prescribes seventy-five grains of tincture of iodine and two hundred and twenty-five grains of saturated chloroform water, of which from two to six drops are to be taken in a little sweetened water.

For nervous children, over twelve years old, Ewald prescribes cherry-laurel water, three quarters of an ounce; tincture of belladonna, seventy-five grains; cocaine hydrochloride, four grains and a half; morphine hydrochloride, three grains. From five to ten drops are to be taken every hour or two. The following formula is recommended by Guibourt: Syrup of lemon, three hundred grains; lemon juice and orange-flower water, each, two hundred and twenty-five grains; linden water, two ounces; Sydenham's laudanum, nine grains; sulphuric ether, fifteen grains; potassium bicarbonate, thirty grains. The bottle should be corked immediately, and from a quarter to a third of the mixture is to be taken at once. Le Bariller advises the use of the ether spray over the epigastrium; also blisters or the actual cautery over the same part.

The Treatment of Intermittent Fever in Children.—The *Presse médicale* for August 25th publishes an article on this subject by M. J. Simon, who remarks that he gives quinine sulphate in large doses from once to three times in the course of an hour, then a series of small doses up to the moment when the attack comes on, or until symptoms of cinchonism appear. If the dose in the beginning is from a grain and a half to three grains, the author prescribes afterward a dose of three quarters of a grain to be taken every two hours until there is a buzzing in the ears or a slight slackening of the pulse. After the attack has been arrested the large and small doses are diminished, but the use of quinine salts must be carefully continued for four or five days after the symptoms of paludism have entirely disappeared. Physiologically, the action of quinine salts appears three hours after their ingestion, but in pathological cases the functions of absorption are disturbed, and the dose should be given from ten to twelve hours before the attack comes on. It should be given also before eating. The author gives the following formulas: For an injection, quinine sulphate, three grains; Sydenham's laudanum, from one to two drops; Rabel water, a sufficient quantity; water, from an ounce to an ounce and a half. For a suppository, quinine sulphate, from three quarters of a grain to a grain and a half; cacao butter, thirty grains. For an ointment, quinine sulphate, fifteen grains; lard, half an ounce; ammonium chloride, thirty grains; or the following may be used: Quinine valerianate, sixty grains; lard, an ounce and a quarter. For a pill, quinine sulphate, three twentieths of a grain; honey, a sufficient quantity. From five to fifteen of these pills may be given in currant jam.

Railway Neuroses not Sui Generis.—The *Alienist and Neurologist* for July says that, according to Dr. de Jacobson (*Hosp. Tid.*, September 20, 1893), Oppenheim has yielded to the philosophical deductions of Charcot, Gilles de la Tourette, and others, and the French school has convinced the German school that neurotic disturbances following railroad accidents are not traumatic neuroses *sui generis*, but the shock attending railroad accidents simply develops the ordinary symptoms which manifest a neurotic diathesis, such as paralysis agitans, epilepsy, disseminated sclerosis, or insanity, but nearly always hysteria or neurasthenia, or the two combined. Page, in his latest work on injuries of the spine and spinal cord and nervous shock, supports the French school.

Lectures and Addresses.

FOUR CASES OF CHRONIC PULMONARY INVOLVEMENT, WITH FEATURES OF SPECIAL INTEREST.

A CLINICAL LECTURE DELIVERED AT THE UNIVERSITY OF DENVER,
March 21, 1894.

By E. R. AXTELL, M. D.,

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NEUROLOGIST TO THE DEACONESS HOME HOSPITAL;
PATHOLOGIST TO ST. LUKE'S AND TO THE ARAPAHOE COUNTY HOSPITALS.

GENTLEMEN: With the great array of pulmonary tubercular cases we see here, the subject must certainly tire some of you. So often repeated is the same old story of cough, pain in the chest, and emaciation—apparently the three cardinal signs of the laity in their diagnosis of consumption, and which certainly are of great value even to us—that the story loses some of its freshness, and unless we have the proper spirit of study it becomes decidedly irksome.

That I may not weary you, I have selected four especially interesting cases, each of which presents some one or more features that will be worthy of a few words. One does not appreciate the reputation that Colorado enjoys as a health resort until he has been connected with a clinic like this for some months. When we see so many of the poor seeking this climate for pulmonary diseases the question of how did they hear of its advantages is hard to answer. When we learn further that the majority of our tubercular patients here are foreigners we are also perplexed.

I shall say but few words to you upon the subject proper of pulmonary tuberculosis. I often wonder if there is anything more to be said. It has been classically studied, and to-day its literature does not need rewriting as does the literature of tubercular meningitis, erysipelas, and gonorrhœa.

Let me present this case. His history when taken, December 23, 1893, was as follows:

Michael P., aged thirty-one years, Pennsylvania, railroader, married. He has been in Colorado four years.

Family History.—Father and mother and one sister died of consumption in Pennsylvania. One sister died of caries of the spine (tuberculosis). One brother died in infancy. He has two sisters alive and well. Of grandparents nothing is known.

Certainly this patient's family history alone is of interest.

Patient's History.—Health when a child good. He had mumps and measles, but nothing else. He was then quite well up to his present trouble. This began two years ago, when without any apparent cause he developed a rectal abscess, which was opened at the end of six weeks, but which has never healed up. It will stop running for a few days; a sense of tightness will develop; it will then open and discharge for a short time yellow offensive matter, and again the cycle is repeated. Occasionally he passes some wind through the opening.

A few weeks ago it stopped discharging altogether, and since then patient has experienced much pain and annoyance in and about the site of the old abscess.

Seven months ago, without cause, patient began coughing. In other words, the rectal abscess antedates the cough seventeen months. This is not the usual course. The rectal abscess usually complicates the pulmonary involvement.

During the past four months, from December 23, 1893, the bowels of this patient have been seriously constipated and he has had to take castor oil every other night. How would you like this? His digestion and appetite have also been poor.

During the past year the patient has lost thirty-two pounds in weight. Since his last abscess began he has suffered much with headache. He sleeps well. During the day he feels weak and tired. His mental condition is good. He coughs mostly in the morning and on retiring at night. The expectoration is thick and yellow. The examination of this shows a few tubercle bacilli. He gives no history of a pulmonary hæmorrhage. At present his pulse is 126, his temperature 103.6° F. The physical examination reveals a brawny red swelling between the right tuber ischii and the anal opening. Near the anus is a small pimpled elevation, the external fistulous opening which occasionally discharges pus. There is no fluctuation now in the brawny mass. The introduction of a probe, with a little force, into the pimpled elevation is followed by the discharge of some whitish-yellow offensive pus, with much relief to the sense of tightness which had previously existed.

The examination of the lungs shows the apices free, but involvement of the left lower base anteriorly and laterally, this part giving us a high-pitched percussion note, bronchophony, bronchial breathing, and subcrepitant râles.

The involvement of this area by a tubercular process is of interest because of its rarity.

You have seen so many apices involved by tuberculosis that a case where pulmonary phthisis exists and yet the apices are clear must be of interest.

An operation was advised for this patient's rectal abscess. He left the clinic only to return on January 15th of this year with the statement that he had on the previous day coughed up half a teacupful of blood. This thoroughly alarmed the patient, and he asked to have the operation done at once. I declined to do it until the bleeding point in his left lung had had time to become well sealed.

On February 1st of this year I operated on him. A number of you saw the operation. Three large suppurating tracts were opened, scraped, and allowed to granulate up from the bottom. The internal opening of the abscess could not be found, and the director was simply pushed through the bowel.

Chloroform was given him, and it caused no pulmonary or bronchial irritation.

To-day, March 21st, I present him to you again. His pulse is now 96; his temperature is normal. He has gained six pounds since the operation, and he feels better than he has for a year. . . . As you see, the entire cut has healed, and there are no evidences of new tracts. His bowels move without medicine every other day. He eats well and sleeps well. He states that the "humming" which he had in the left chest is only about one third of what it was, and that his cough is almost well.

Certainly the result here is of interest. Remember that what your patients want are results. Your reputation depends largely upon your results. I can not refrain from adding, however, that in most cases results depend upon diagnosis.

I have an apology to offer you concerning my report on

this case. From carelessness and hurry I failed to examine the pus of the rectal abscess for the bacillus of tubercle. It was a serious omission and will not occur in my next case. Whether this abscess was tubercular or not, it was poisoning the patient, keeping his temperature elevated and his life processes at a low ebb—sufficiently so that during its continuance his lung trouble, which had made a start, had spread with much rapidity.

Another abscess may develop here if the first was tubercular, but the treatment will be the same as has been pursued.

This next patient is an Italian:

He is twenty-two years of age and is a clerk. He came to Colorado fifteen days ago from New York city. His history, briefly told, is as follows: The only consumption in the family was in a brother, who died after a sickness of a year and a half. He was always strong and well up to six or seven years ago, when he began going with fast women and contracted several sores on his penis. From that time he has had poor health, although he has had no eruption, no sore throat, no sores in the mouth. Two weeks ago he noticed his hair dropping out, and it is still falling out badly.

His present pulmonary trouble began three months and a half ago. He took a bad cold during a carousal, and began coughing and having a little fever. His cough got progressively worse, and on December 20, 1893, a month after his cold began, he had a slight pulmonary hæmorrhage. On December 23d he had another one, which was quite profuse. He spat up fully two glassfuls of blood. He got it stopped, however, after being in bed five days. Since that time his cough has continued. At present he coughs most in the morning and at night. The expectoration is whitish-yellow and, on examination, shows no bacilli of tubercle.

His pulse is 96 and his temperature is normal. He has no shortness of breath, except on exertion. The physical examination of his chest shows the left apex involved down to the lower level of the first rib, there being above this dullness, increased vocal fremitus, mucous râles, bronchophony, and bronchial breathing. The right apex gives us a rough and prolonged expiration.

This young man we will now excuse. He did so well in the fifteen days after coming here and before I saw him that I did not believe any active medication was needed for his lungs. As his hair was coming out, I prescribed for him a stimulating hair wash.

A few months ago Mr. C. L. Ford, of this city, a druggist of well-known integrity and ability, after seeing two or three of my prescriptions calling for the syrup of hydriodic acid, stated to me that it was his opinion that this syrup was of no value, and that when I had an opportunity he would agree to furnish this syrup in any quantity I wished, provided I would use it in large doses.

The gentleman who has just excused was made the subject of our test. He has now taken six pints of this syrup, freshly prepared by Mr. Ford, and, according to him, of better strength and activity than any of the bottled syrups on his shelves.

He is at present taking an ounce and a half of the preparation three times a day, and has been for several weeks. Yet we have not as yet had a single symptom of iodism, no gastric irritation, no neuralgia, no ringing in the ears, no convulsive

movements, no coryza, no salivation, no disturbed intellection or vision, no ophthalmia, no cutaneous eruption, no emaciation, as is reported after the prolonged use of iodine.

This might be overlooked, but the dropping out of the hair still continues. This I supposed to be a specific manifestation, and I expected it to stop after the prolonged use of iodine, but, unfortunately, our medicine has had but little influence on this condition.

I shall still continue the use of this syrup in the case and shall press it further.

This trial has certainly lessened my faith in its value.

I have now but two more cases to present to you, and then just a few words on treatment.

Mr. A. M., aged thirty-eight years. He was born in Russia. He is a single man and his occupation is peddling. He comes to us complaining of a cough of two years and a half duration. The family history is good. There is not a single case of pulmonary consumption in the family. He states that he was always strong and well up to his present trouble, and that positively he was never sick a day before his cough began. He denies syphilis. He left London, England, perfectly well in July, 1892. He took a steerage passage and came over to this country in eight days. Among the passengers were many consumptives.

Just before leaving the ship he noticed that without cause he began coughing. This continued and has continued up to the present time. With the cough, after a few months, he had dyspnoea and diarrhoea and night sweats, and once or twice he saw some little blood in his expectoration. Before coming to Colorado he lost twenty pounds in weight.

When he came to Colorado, nineteen months ago, he coughed day and night, and he could not walk two blocks. He spat up much yellow and heavy mucus, and he had much pain in his chest. Since his arrival here he has gained twenty pounds in weight and his cough has lessened a great deal. As a rule, he coughs most in the morning and on retiring at night. He still expectorates much thick whitish phlegm. I find his pulse is now 96 and his temperature 98.5° F.

The physical examination of this man's chest gives rather a negative result. At the right apex we get prolonged expiration, with the vesicular sound being replaced by bronchial breathing. This condition persists down to the nipple. The left apex is clear and nowhere in his chest do I find a single râle.

I finished the examination of his sputa this morning and I found a great many tubercular bacilli in every field. He has here a tubercular infiltration of his right lung. It is very dry, as it is apt to be in Colorado. I have seen many cases of pronounced tubercular disease of the lungs come to Colorado with a chest full of bubbling and mucous râles, which would dry out and largely disappear as if by magic under the influence of this wonderful climate. Dry catarrhal pneumonia in children is another special feature of this dry region.

This case is one of special interest to me. I labeled it in my case book "shipboard infection." Possibly this is not right, but it does seem so. If you or I were to visit the leper colony on the Sandwich Islands and soon after, if possible, be attacked with leprosy, we should certainly be right in attributing it to our visit among the lepers. This man, a perfectly well man, entered a colony of tubercular persons under the most favorable conditions for infection. It is as if he had been made to inhale dried tubercular sputa for eight days. Certainly the germs fell on good soil. The

body temperature suits them; they thrive on blood serum. Something made him cough, something has kept that cough up. To-day I find the bacillus of tubercle in large numbers in his sputa.

I have not asked for the period of incubation. Why should it be long when it first acts locally? I have had many a "corpse tubercle" develop on my finger in from one to four days. Why can it not act equally soon in the delicate tissue of this man's lung?

I see the process developing in this way: The tubercular germs were carried by the air currents to the right apex. They were deposited on the epithelial cells lining the air vesicles. The epithelial cell felt the contact of its enemy. It proliferated. Two cells of epithelium now took the place of one, but the bacillus of tubercle was not idle. In its slow, deliberate, and dignified manner many enemies had taken the place of the one. More epithelial cells accumulated. More bacilli of tubercle were produced. The vaso-motor nerves then received a call of alarm. The leucocytes hastened to their rescue. They destroyed many of the enemy and many of them in turn lost their lives. The battle was to the strong, however; the bacilli survived. The first step of a catarrhal pneumonia was now present. This patient began to cough. Very soon, indeed, did the system in general respond to the invasion of the bacillus of tubercle. His subsequent history shows that his infection was tubercular from the start. In a month or so he had, in his own words, "a bad cough, with a great deal of spitting and all the signs of consumption; trouble in getting breath, diarrhoea, and night sweats."

His trouble still exists. Yet Colorado has done much for him. This is an old story with us all. Not a day's clinic goes by that we do not have the opportunity of seeing the benefit of our sunshine, our dry atmosphere, and our bracing and invigorating climate. This patient has gained twenty pounds since his arrival here nineteen months ago, and whereas he had not been able to walk before he came here, he is now able to be at his work.

He comes to us now for an exacerbation of his old trouble, due, as he says, to a fresh cold. Treatment will be given him.

Now for our last case—a case of equal interest to those just shown you.

Frank G., aged twenty-six years, Russian, cigar maker, married; has been in Colorado for two years. He comes to us with pulmonary trouble of four years' duration.

The family history is good. His father died of catarrh of the stomach. There is no pulmonary trouble in any of his relatives.

The patient enjoyed the very best of health up to his present trouble. He has never been sick, his habits have been good, and he has never had syphilis.

Four years ago, without cause, without a previous cough, without any blow or injury, he suddenly coughed and began bringing up blood. The hæmorrhage was profuse, and he says he lost more than a pint of blood. After lying down and taking some medicine it stopped. He was in bed, however, for three weeks because of bodily weakness. Then his cough started and it has since continued. He went back to his work, but he began having pain in his left chest and rapid emaciation.

He went to Canada, but his cough continued. He picked up at first, and then began going down. He then came to Colorado. Since coming his cough has continued, and he does not believe that physically he is any better than when he came. He comes to us now for absolute loss of appetite or anorexia. He tells us that he could go for days or a week without eating a mouthful or without experiencing hunger. He has no nausea, no vomiting, no pain. The bowels are regular, but the stools are small. He forces himself to drink coffee and milk several times a day.

The physical examination of this patient shows some disseminated consolidation over the base of the left lung and a slight involvement of the right apex, made evident by percussion and auscultation. His heart's area and sounds are normal, and there are no evidences of a thoracic aneurysm. The examination of his sputa shows no bacilli of tubercle, but the array of air micro-organisms present in his recent expectoration is remarkable. I believe I can unhesitatingly pronounce this case tubercular, even though the examination of the sputa reveals no bacilli. Remember, the absence of the bacilli of tubercle in sputa is of far less value than their presence.

This case is interesting because of the negative history of trouble before his pulmonary hæmorrhage, and it is now of interest because of the absolute anorexia which this patient has. A pulmonary hæmorrhage is not always tubercular. This point ought to be impressed on you. Let me enumerate some of the remote causes of a hæmorrhage from the lungs: Chronic arterial or venous hyperæmia may cause bleeding from the lungs; some obscure vascular degenerative changes incident to depraved blood states, aneurysm, amyloid, fatty, and syphilitic degeneration of the pulmonary arteries or veins may all cause hæmoptysis; then again it may be vicarious to a menstrual or hæmorrhoidal flux; but in the overwhelming majority of cases the bleeding is due to a tubercular degeneration of the tunica intima and media of some one or more vessels, with which process inflammation of course exists.

The tubercular inflammation here, which after exclusion was no doubt the cause of his hæmorrhage, must have been very localized and very slight. He had no cough, no evidences at all of any pulmonary involvement before the hæmorrhage. Let us learn one thing from the case at least, and that is that a cough is sometimes absent when serious pulmonary trouble exists.

How to account for his present state of anorexia is more difficult. We do not know the conditions of life which surround this man, we do not know his cares and sorrows. We see him here slightly anæmic. We know that anæmia is sometimes responsible for anorexia. But in many cases of this kind the secretion of the various digestive juices is poor in quantity and quality and the stomach is not prepared to take care of food, and hence there is no call for it. It is more than probable that such is the condition here. To treat it, we need to prescribe those drugs which will first increase the stomachic and hepatic secretions. I prescribe for him this capsule to increase the hepatic secretion: Euonymin, gr. $\frac{1}{8}$; podophyllin, gr. $\frac{1}{12}$; calomel, gr. $\frac{1}{4}$; aloin, gr. $\frac{1}{12}$. To increase the secretion of the hydrochloric acid of the gastric juice and thus the nascent pepsin, I order for him a mild alkaline solution of gentian and capsicum.

But of most importance in the treatment of all our tubercular cases is creosote.

Creosote is obtained by the distillation of beech-wood tar. It is allied to carbolic acid, in that carbolic acid is distilled from coal tar. Creosote is a compound body and consists of such compounds as guaiacol, creosol, kresnyl, phloryl, and phenyl alcohol. You are all familiar with its appearance, and certainly with its odor.

In the use of any remedy in this dire disease, in which too much medicine has always been given, we want clear proofs of its value, either clinically or theoretically. In creosote we have both. It was first used in 1830 with success in chronic pulmonary diseases, but not until 1887 and 1888 did it have the revival which it now enjoys. Professor Julius Sommerbrodt, of Breslau, Prussia, is to be thanked for its present extensive use. He has reviewed some five thousand cases of tuberculosis in which creosote was used, and his statement is to the effect that definite recovery has been attained in a larger proportion of such cases by its use than by any other method of treatment, and that in the great majority of cases decided benefit could be traced to its use.

Our clinic could add several hundred of "improved cases" to his large list. Not once but many times have we been able to see the fever diminish, the night sweats disappear, cough and expectoration lessen, and the general health of the patient improve under the benign influence of creosote.

The method of its administration which we use at our clinic here is about as follows: We begin with three minims of the drug three times a day and increase the dose one minim each day until we reach the point of intolerance. We then continue the use of the drug, in as large a dose as the patient can stand, for an indefinite period, always directing it to be taken after meals.

In the majority of our cases we have the drug taken in liquor, milk, or malt extract. In the use of creosote we must use large doses to get the best of results. After ingestion it is probably in part changed, in part not absorbed, and in part quickly excreted. Many of our patients here are taking very large doses.

The use of large doses is frequently attended with much gastric disturbance even though we give it cautiously. Some patients can take but very little of it. The chemists have now devised for us a non-irritating preparation of creosote which will certainly prove of great service in these cases. I refer to creosote carbonate, or creosote combined with carbonic acid. It is non-irritant and non-poisonous and contains ninety-two per cent. of beech-wood creosote. It is a clear, neutral oily liquid, of a slight taste and an inoffensive odor, and agrees with the most sensitive stomach. The dose is from one to four drachms daily, given in divided doses. If it proves of the same value as creosote, and I believe it will, it ought to replace creosote in every case. My experience with its use is as yet too incomplete to allow me to make even a fair report.

Now just a few words to you upon the theory of the way in which creosote is supposed to act. Professor Sommer-

brodt based his usage of large doses of creosote in tuberculosis upon the researches of Guttman, who found that the bacillus of tuberculosis could not live in a solution of creosote of greater strength than one part in four thousand. Now, if twenty grains of creosote could be introduced into the blood of an ordinary man, it would represent a solution of such a strength. It is considered not impossible to produce such a condition. With this present, the beneficial effect of the use of creosote would not be difficult to explain. The bacillus of tubercle living upon the blood serum would soon be destroyed and the process in the lungs would quickly be reduced to a simple catarrhal affair.

But creosote as creosote has not been found in the blood of patients taking the drug. This looks as if it might be a serious objection to the theory of Sommerbrodt; but as it is eliminated from the kidneys and lungs as creosote, it must circulate in the blood. It is supposed to enter the blood in combination with certain albuminoids in the blood and to form compounds which still possess the properties of the crude drug.

But how creosote acts in smaller doses and in what way it produces its beneficial effects is as yet speculative.

Seifert and Hoelschler have recently formulated the theory, which is now very generally accepted, that the toxic albumins which result from the presence of the bacillus of tubercle in the body, and by their presence produce the fever, the night sweats, and the other tubercular manifestations, are neutralized by the creosote albuminoids, or that the presence of these renders the toxic products stable and therefore non-toxic, and further that they assist in their elimination.

It is very probable that this theory is the right one. I have seen benefit result from five drops of creosote three times a day.

Creosote, while a compound body, contains about seventy-five per cent. of guaiacol, and because of this guaiacol has been called the active principle of creosote; but personally I have not observed at our clinic here the same benefit from guaiacol that I have from the use of creosote.

I shall continue to use creosote or its carbonate. Whether I shall use it next year or the year after I do not know; but whatever drug may come or go, there are three things that we shall use for pulmonary tuberculosis many years from to-day, and even when all drugs fail us they will still be worth reliance—I mean careful attention to diet, fresh air, and sunshine.

Respiration versus Nourishment.—"What's the patient's temperature this evening, nurse?" "I've just charted it," returned the nurse, "and I've taken it and the pulse and respiration every two hours." The doctor looked surprised, but silently held out his hand for the neatly marked record. "What nourishment have you given?" he asked, after looking at it. The nurse seemed startled. "I'm afraid I can't tell you. I know she had some milk once, and since then some beef tea, but I did not remember about the nourishment this evening. I was so anxious to get the pulse and respiration right." "Then perhaps I had better attend at feeding times, and see to the nourishment myself," retorted the old-fashioned doctor sharply. —*Hospital.*

Original Communications.

TUBERCULAR DISEASE
OF THE SHOULDER JOINT.*

By W. R. TOWNSEND, A. M., M. D.

TUBERCULAR disease of the shoulder, as compared with tubercular disease of the other large joints, is a rare affection. The rôle that traumatisms play in the development of these conditions may partially account for its rarity, but the anatomical reason is not perfectly clear why the head of the humerus should be so seldom diseased as compared with the head of the femur. From its construction the joint is well protected, but traumatisms do occur yet are seldom followed by disease.

The relative frequency is variously given. Crocq, quoted by Ollier, saw one case in a hundred and forty. Billroth, out of 1,996 cases of joint tuberculosis, had 28 examples in which the shoulder was involved. Hubbard quotes the *Guy's Hospital Reports* as giving less than one per cent. of disease of the shoulder as compared with affections of the other joints. At the Hospital for the Relief of the Ruptured and Crippled, New York, from 1889 to 1893 inclusive, 3,244 cases of bone and joint tuberculosis were noted, and of this number 21 were of the shoulder joint.

Of these twenty-one cases eleven were in males and ten in females. The average age at the time of the first visit was twelve years, the youngest patient being three years and three months, the oldest thirty-five years old; ten were under ten years of age, seven from ten to twenty years, and four were over twenty. The disease had existed on an average one year and nine months, the longest duration being ten years, the shortest three months, showing the average age when the disease first appeared to be about ten.

These statistics are very different from those of Mondan and Audry,† who give the average age as twenty-four years and seven months, but think this is too high, and that twenty-three would be more nearly correct. Their oldest patient was sixty, and the disease began at the age of fifty-five; their youngest, eight years. They conclude that the disease is less common in early than in adult life, but our figures would prove the contrary. Their figures do not necessarily prove this, because they only admit adults to their clinic; but at the Hospital for Ruptured and Crippled no distinction is made as to age.

In adult life as in childhood most patients know of no cause for the disease, and in the cases forming the basis of this paper in only two was a cause given, and in each instance a fall on the joint had preceded the disease. In five there existed tubercular lesions of other joints. One had Pott's disease, two had hip disease, and two had disease of the knee; but in every instance the shoulder was the last joint affected. In the cases of Mondan and Audry ten out of forty patients had had hæmoptysis or other signs of pul-

monary tuberculosis, and two had disease of other joints in addition to the shoulder.

The ætiology of the disease is indicated by the title, and as in most other forms of joint tuberculosis the primary lesion in the body is more apt to be in the glands about the bronchi or lungs, or in the latter, than in the synovial tissues or bone. At least, this is the generally accepted opinion to-day. The bacilli of tuberculosis are the primary cause of the disease; secondarily, traumatisms may have an influence or may render a joint less able to resist the tubercular process. Heredity is no longer considered a potent factor.

The pathology does not vary from that of tubercular disease of other joints, and as the results of thirty-two excisions practiced by Ollier and his colleagues, all done on adults or patients near adult life, in their valuable article on the subject Mondan and Audry report the following: The starting point of the disease was in twenty-nine cases in the bone, in one doubtful, and in three clearly synovial. Of these cases, in twenty-three the disease originated in the humerus, in four in both the scapula and the humerus, and in one in the scapula. In ten patients there was one lesion in the humerus, in nineteen the lesions were multiple. In twenty-two cases it was in the epiphysis, juxta-epiphyseal in five, and both in the other five.

The anatomical head and neck were the site in twenty-six, twelve in the neck and fourteen in the head of the bone.

The disease was, as a rule, peripheral rather than central, and was generally just beneath the cartilage, and several ill-defined cheesy masses were generally found; rarely was a distinct, well-defined focus seen. In addition to these cheesy masses, in twelve excisions sequestra were found, seven of the humerus, four of the scapula, and one of doubtful origin. In these cases the bone may be very hard and different from most sequestra found in necrosis from ordinary causes. A condition exists which Ollier speaks of as "paratuberculose," really a new process, the result of the inflammation. In one of his cases the sequestrum had probably been in the joint for eleven years, yet the edges were very little softened. In the three cases reported in this paper in all the focus was situated in the head of the humerus.

The symptoms of the disease come on, as a rule, very slowly, although they may come on rapidly, abscesses occur, and destruction of the joint follow with more or less complete ankylosis. In childhood the symptoms come on, as a rule, more slowly than in adult life, and are less apt to be severe and terminate in abscess.

The symptoms in disease of the shoulder are constitutional and local. The former are those common to tubercular inflammations, and usually only consist of a slight or moderate change in the temperature, a slight elevation in the evening with a return to the normal or nearly to it in the morning. Of course, where general tuberculosis is present the constitutional symptoms are more marked. In slight cases they may be entirely absent. The symptoms referable to the diseased articulation are pain, reflex spasm, atrophy, change in the contour of the parts, loss of func-

* Read at the eighth annual meeting of the American Orthopædic Association.

† Mondan et Audry. Les tuberculoses de l'épaule. *Rev. de chirurgie*, 1892.

tion, glandular enlargements, usually in the axilla, shortening of the arm, abscesses, and ankylosis.

The pain is usually the first symptom noted and may very greatly. In some it is only present when joint motions are made, and occasionally even only when the motions are severe or excessive. Again, it may be much worse at night than by day and elicited only by deep pressure or by the slightest touch. It is usually referred to the shoulder joint, but may be complained of at the elbow or in the muscles in front of or behind the joint. In some rare instances the disease may progress steadily and only a sense of fatigue be complained of after using the limb. In the majority of cases, however, the pain is a serious symptom, is usually worse at night, and may require the use of anodynes for its relief. In one instance reported by Ollier an excision was performed simply for the relief of a most violent and intractable pain in the joint.

In this joint, as in all others affected by chronic disease, reflex muscular spasm is the most important symptom. Whenever present it is a positive sign of disease. It appears early and remains throughout. The spasm is most marked in the deltoid and is most easily elicited by abduction of the arm. As the circumflex nerve supplies both this muscle and the joint, movements of flexion and extension, in both of which fibers of the deltoid also come into play, are in condition of spasm as soon as abduction. Adduction and rotation are less apt to be painful and limited by spasm, but as the joint is supplied by the same nerves which supply the muscles about it, in well-marked cases all motions are limited.

The atrophy is an early symptom and is most marked in the deltoid; the wasting may be very rapid and extreme, suggestive even of paralysis. All the muscles about the joint decrease in size, even those posteriorly on the scapula and in front on the arm and forearm. Cases have been reported also of atrophy of the pectorals. The length of the humerus is affected, and in a case reported in this paper the forearm was also shortened. In all cases examined the length of the arm on the affected side was shorter than the healthy limb. This shortening varies from a quarter of an inch to several inches. No change has been noted in the hands, but it is reasonable to suppose that they might also be smaller. Disuse later on helps to increase the atrophy. If the upper epiphysis of the humerus has been removed before ossification is complete the shortening might be excessive, but I have not had the opportunity of measuring any such case or finding the record of one. I have not found notes of any case where the atrophy by diminishing the support to the joint has permitted a dislocation to occur.

As a result of the atrophy there are marked changes in the contour of the parts about the joint. By diminishing the size of the muscles the bony prominences are more clearly brought out. The acromion projects, a depression is seen beneath it, the coracoid may be made visible, and the head of the humerus may be seen in front of the joint. The paralysis of the deltoid weakens the support about the articulation, and even where no fluid is present the humer-

al head may be lowered, the weight of the arm pulling it away from the glenoid cavity.

Secondary effects may be produced which also change the contour of the parts: the sternal end of the clavicle may be more or less completely dislocated upward from a pulling down of its acromial end and a lateral curvature of the spine result from a change at the shoulder. Looked at posteriorly, the atrophy of the scapular muscles brings into prominence this bone, and when ankylosis has occurred displacement of the scapula also results and its inner angle is made more prominent.

The loss of function due to muscular spasm primarily and later on to ankylosis varies greatly. It may be most limited when due to spasm, for the pain and fear of pain will hinder free motion. Abduction is most affected, then flexion and extension, lastly adduction and rotation. Circumduction, being due to a combination of the others, is entirely suspended. After ankylosis has occurred the mobility of the scapula, which mobility is in such cases increased, renders the loss of function less than it otherwise would be. In examining patients who have had this disease we must test the motions of the arm and shoulder joint separate and distinct from those of the forearm. Many have good use of the forearm and no disability, so long as motions of abduction of the arm are not undertaken, yet their disability is complete in that particular.

Ankylosis, partial or complete, is the usual termination of the disease. Partial ankylosis is generally fibrous in character and complete ankylosis bony. As a rule this union of the humeral head to the glenoid cavity limits the ability to raise the arm from the side to about one third to one fourth the normal. Raising the arm above the horizontal or beyond 90° is accomplished by the trapezius, and is usually impossible when ankylosis exists; by the power of the trapezius and the mobility of the scapula, however, in some the arm may be raised to the horizontal, and this fact diminishes somewhat the disability. All movements requiring great freedom of the arm are therefore seriously interfered with. The patients are often unable to raise the hand to the mouth or head, thus rendering them incapable of feeding or properly dressing themselves. They may or may not be able to lift much even with the arm extended, and the power to hold up much weight when the arm is abducted is in all cases very much diminished.

The loss of function is thus seen to be a serious matter in many cases, and only such work can be done in severe cases as requires but little force and such as can be supplied by the forearm alone. When the patients can get the hand to the head, feed and dress themselves, the condition is not serious and the disability often but little felt.

In most cases of tubercular disease of the shoulder, abscesses occur sooner or later. Mondan and Audry found them in twenty-seven out of thirty-three patients. In all but one of the cases we have seen of many years' standing, abscesses either had existed or were present. They generally appear in front of the joint or below in the axilla. They may burrow down and appear upon the arm or on the chest, and in a case reported by Panas the abscess first came to the surface below the elbow. With the appear-

ance of the abscess the joint may appear swollen, and the increased size of the joint is more often due to this cause than to distention by synovial fluid. The abscesses rarely heal promptly, but leave sinuses which discharge for a varying number of months or years. In one of our cases the sinus has been discharging for two years. They may close and reopen a number of times before a final cure results.

The duration of the disease varies, but we may safely say that two or three years in favorable cases would nearly represent the average and a much longer time in the unfavorable. A not infrequent occurrence is to have the symptoms subside and then, either due to a traumatism or from some unknown cause, an exacerbation occurs and the symptoms may be very acute. Many such cases, save for the occurrence of abscess and other symptoms, would almost lead us to believe they were rheumatic. Relapses in perfectly cured cases, however, are rare.

From the close proximity of the glands in the axilla to the joint the former are usually enlarged when tuberculosis exists. The enlargement may subside with the disease or they may become cheesy or break down. They usually call for no local treatment.

The complications of the disease are those common to tubercular joint troubles, the most common being the involvement of another joint; but in our cases the shoulder was always the second, never the first, where the patient had several lesions. From its close proximity to the lungs pulmonary complications are frequent in adults. In children we can not speak positively on the subject, but as the bone lesion is rarely the primary one, the exact influence it may have on the production of the complications is not always perfectly clear or easy to estimate.

The diagnosis is a matter of great importance, and in typical cases is usually easy. The conditions oftenest mistaken for tubercular disease of the shoulder are rheumatic arthritis, paralysis of the deltoid from any cause, dislocation of the humerus, and osteomyelitis of the upper portion of the humerus.

In rheumatic arthritis in early life the frequency of occurrence of tubercular disease is important, as monarticular rheumatism is comparatively rare, the rheumatic affections generally being found in several joints and may be accompanied with chorea and heart lesions. In rheumatic arthritis of adults there is usually a history of rheumatic pains in other joints as well as in the joint affected. In tubercular joint disease the onset is slow and insidious, in rheumatic arthritis more apt to be rapid and well marked. In tubercular disease of the shoulder atrophy is an early symptom, in rheumatic disease the parts in and about the joint are swollen. Reflex muscular spasm is present in both, but most marked in the tubercular cases. Glandular enlargements common in the tubercular, rare in the rheumatic. The length of the humerus and of the arm is shortened in the tubercular, unchanged in the rheumatic. The presence of pulmonary or other tubercular lesions may occasionally be of assistance in making a diagnosis. In tubercular disease the pain is usually worse at night, in rheumatic cases the contrary is the rule. Rest and support may relieve the symptoms in the tubercular, usually do not in the rheu-

matic. The so-called antirheumatic drugs may soon cure the rheumatic, generally have no effect on the tubercular. Abscesses are common in tuberculosis, rare in rheumatism. Constitutional symptoms are generally more marked in inflammatory rheumatism than in joint tuberculosis. A careful study of the history and of the above-mentioned differences in symptoms usually makes the diagnosis an easy matter.

From paralysis of either central or peripheral origin, the history, the character of the attack, the electrical examination, the absence of glandular enlargements and of abscesses, the lack of pain, the loose or flail joint as compared with the one held rigid by muscular spasm or ankylosis, should make mistakes between these two diseases almost impossible.

A careful anatomical examination, the disability following immediately after a fall, absence of reflex spasm, and other symptoms of joint disease, ought easily to exclude dislocation of the humerus.

In osteomyelitis the history, rapid onset, severe constitutional symptoms, swelling instead of atrophy, and careful examination of the affected bone will rarely cause any doubt as to the true nature of the lesion we have to deal with.

The prognosis of the disease should be considered from two standpoints—the effect on the general constitution and locally on the joint. On the general health it is doubtful if disease of the shoulder is more serious than disease of the other large joints; a certain number of patients die from tubercular meningitis or pulmonary complications, but it is very difficult to say in most cases that the cause of death may not have been from an infection of tubercular material from some other source than the diseased shoulder. In adults, if abscesses have formed and sepsis occurred, this may cause death, but in childhood such an occurrence is rare. The prognosis is worse in adults than in children, for bone tuberculosis is more apt to terminate favorably in the latter and the complications are less frequent. On the joint itself the prognosis is bad. Many cases end in ankylosis and practical destruction of the articulation; others have more or less firm ankylosis without much destruction of bone and but very rarely is a good functional result found.

The slow and insidious onset of this disease and the fact that it is so often mistaken for a rheumatic affection and little attention, therefore, paid to it, account for the statement previously made that in twenty-one cases seen by the author the disease had existed on an average a year and nine months before treatment was begun. This fact must also be taken into account when we consider the results, for the majority already had ankylosis, either partial or complete, when first seen. A few cases were seen early and conservative treatment advised, but this was so poorly carried out that in no case can we say that mechanical treatment was really given a fair trial; but careful reading and the examination of some patients who, it may be supposed, had been subjected to careful mechanical treatment, lead to the belief that ankylosis more or less complete is the usual result after such treatment. Two methods are available—one simply to keep the joint at rest by a plaster-of-Paris or silicate-of-soda bandage, or less efficiently by a

simple sling, or in the second method to immobilize the joint and make extension by adhesive strips applied to the arm, the counter-pressure being by a crutch in the axilla. To put the patient in bed and make traction by weight and pulley would not recommend itself to many. In all the cases treated by immobilization the pain and spasm were relieved by the support. In Cases IV and V of this paper the early treatment was improper and of a nature to produce ankylosis. The fallacy that complete immobilization of tubercular joints produces ankylosis is a theory of the past. That motion at the shoulder may occasionally be secured by *brisement forcé* in the rheumatic is not under consideration, but in tubercular disease of the shoulder all agree that joint motion should be prevented. After the acute symptoms have subsided, electricity may be used to stimulate the muscles, but massage should not be employed in and about the joint for fear of starting up the disease again. Any violent motion, active or passive, is to be avoided.

The question of operation in disease of the shoulder joint has until very recently been much influenced by the fact that excision has been considered a very dangerous procedure. The statistics of Gurlt, Otis, and Culbertson have been quoted by all writers on the subject, but we must remember they were all made before the days of aseptic and antiseptic surgery and have really very little value now. Even the statistics of Sack* and König,† made in 1880, would be, no doubt, improved were they to report again to-day. In considering the subject of an operation several questions must be asked and answered:

1. Are operations on the shoulder justifiable in early life?
2. If so, what should be the operation?
3. What are the dangers of the operation?
4. Should adults be subjected to operative rather than mechanical treatment?
5. Should operations be undertaken on patients suffering from general tuberculosis?

In answer to the first question we will say that, as the growth of the humerus is largely from the upper epiphysis, to remove this by a complete excision before the eighteenth year would much shorten the arm, and in only exceptional cases would such an operation be justifiable. Operations that do not remove too much tissue and thus prevent growth are justifiable and may, by completely removing all the tubercular disease, stop its progress and leave a useful joint. By partial excisions we should have a small mortality list, and this should especially be the case when the operation consists simply in the removal of part of the head of the humerus. The statement of Culbertson,‡ quoted by Bradford and Lovett,§ as to partial excisions being more dangerous than total, is misleading. The nearer we approach the trunk the greater the danger is true, and to remove half an inch of the scapula is more serious than

to remove six inches of the humerus; we should therefore, if possible, confine our operations to the latter bone; in fact, either on children or adults, very few typical excisions of the shoulder are done, the rule being only to remove the diseased tissue and endeavor to get a movable joint as the result.

The dangers of the operation are sepsis and death, and the dissemination of the tubercular material with the production of tubercular meningitis or pulmonary tuberculosis. The danger from sepsis is still present despite improved technique, but, with proper precautions, should be very small and not deter us from operating. The same is true of the danger of producing tubercular meningitis, although in one of the cases here reported a death followed from this complication. The danger is a real one, but just how often meningitis occurs after operations on tubercular patients it is impossible to say. The statement of König, for instance, that in eighteen cases of acute tuberculosis in his practice, sixteen followed operation, is of value; but we ought to know how many cases of acute tuberculosis had developed in those with joint symptoms in whom no operation had been done before we conclude the percentage of such complications is really large. Cheye, in the *Lancet* for 1890, reports two similar cases to the one reported in this paper, and it would be very interesting to know if such a complication is more frequent after operations on the shoulder joint than after operations on the other joints of the body.

That these complications do occur would seem to be an argument against operations simply for the sake of preventing general tuberculosis, as some have advised. In adults the question is somewhat different than in children, for the tendency to pulmonary complications seems greater, and the drain from long-continued suppuration is, as a rule, much more serious in its results. The general advice, then, would be to remove the disease as early as possible in adults. If a partial operation can be done, so much the better. Many such cases are reported, a very interesting one on a boy of fourteen years having been done by Davies Colley* in Guy's Hospital, where a part of the humeral head, the great tuberosity, and adjoining articular surface were removed and a perfect functional result followed.

Several inches of bone may be removed and the result be very satisfactory, as in the case reported by Hubbard,† where he removed four inches of the humerus, and a year and a half later there was only an inch and a half of shortening of the arm. The functional result was almost perfect.

Whether the operation be partial or complete, the subperiosteal method as devised by Ollier should be followed; the growth of the bone is permitted even after the removal of much tissue, and the wonderful results he reports in some cases could certainly not be duplicated by any other method of operation. In one case, after complete removal of the head of the humerus, a new head was formed, and drawings are shown of the portion removed and of the re-

* *Beitrag zur Statistik der Kniegelenkresection bei antisept. Behand.*, Dorpat, 1880.

† König. *Archiv für klinische Chirurgie*, 1880.

‡ *Transactions of the American Medical Association*, 1876.

§ Bradford and Lovett. *Orthopædic Surgery*, 1890.

* *Guy's Hospital Reports*, 1871.

† *Medical News*, April 24, 1886.

produced bone at the end of nine years.* In children operate early, but do not remove the epiphysis and thus prevent growth of the limb.

In general, operations should not be undertaken where pulmonary tuberculosis is also present, but in some cases the improvement after operation is most marked, Ollier mentioning several where the hæmoptysis was entirely stopped or much decreased after an excision. In endeavoring to decide whether to subject such patients to operations we should, as far as possible, be guided by the fact whether the local condition or the constitutional one seems most responsible for the symptoms, never a very easy question to decide; but, when the shoulder is suppurating freely, is very painful, and the pulmonary symptoms slight, operations may be undertaken with a hope of relieving both the local and the constitutional signs.

The principal reason for advocating operative rather than mechanical treatment is that ankylosis more or less complete is the usual result after the latter, and in the arm freedom of movement is what we need, and after partial or complete excision this result may be obtained in most cases. The question is different at the hip and shoulder. At the hip after excision we want a firm support; ankylosis is preferable to a flail joint. A shortened leg much interferes with locomotion, but an arm slightly shortened and freely movable is preferable to a stiff one, although it may be several inches longer, and partial operations do not much diminish the length of the arm. We do not believe operations on the shoulder dangerous, as we reject the old statistics of pre-antiseptic days. The joint is easy of approach, and in a large majority of instances the disease is located in the head of the humerus and can thus be entirely removed. By partial operations and the subperiosteal method the growth of the limb should not be much affected.

In looking over the literature of the subject for the past few years I have found only one case of tubercular shoulder-joint disease reported by an American, and that was by Nathan Jacobsen † of a boy aged three years and a half who had disease of the left shoulder. In this case an incision was made from the anatomical to the surgical neck, all the diseased bone removed by a Volkmann spoon, leaving an opening through the entire thickness of the bone large enough to admit the index finger. Recovery was slow but the result almost perfect, there being half an inch shortening, and ability on the part of the patient to carry the hand to the head, etc.

The histories of the following cases illustrate all types of the disease except those where the symptoms come on very rapidly and joint destruction soon occurs. No such case has come to our personal notice.

CASE I. *Disease of the Right Shoulder.*—M. M., female, aged seven years and six months. Admitted to hospital May 23, 1890. Hygienic surroundings good. An aunt died of phthisis, otherwise family history negative. When three years old began to complain of pain in her shoulder; the arm became

stiff and has so remained. For the past three months the pain has been very bad. At the time of admission the left humerus was nine inches and a half long; the right, eight inches and three quarters. Over the shoulder through the axilla on the right side was five inches and a half; on the left, six inches and a quarter. The circumference of the right arm was six inches; of the left, six inches and a quarter. The head of the humerus was held firmly in the glenoid cavity. No tenderness or pain present. No motion at the joint. The scapula and clavicle were normal. The arm hung by the side and could not be abducted. Elbow normal.

On May 24, 1890, under ether, an incision two inches long was made over the outer and anterior aspect of the joint down to the bone and through the periosteum. This was retracted and a drill introduced at the upper part of the surgical neck and made to pass into the head of the bone, which was found softened. This was thoroughly curetted, leaving only a small shell of bone, the major portion of the interior of the head being removed. The articular surface was not touched and the joint not entered. While under ether, before the scraping was done, motions of the arm were found to be free and no grating in the joint. The wound was packed with iodoform gauze, a plaster-of-Paris bandage applied, the arm being close to the body and the forearm at a right angle to the arm. The recovery was uneventful and she was discharged from the hospital July 7, 1890. At that time there was no pain and very little if any motion in the joint.

Examination, May 17, 1894.—General condition of patient very good. The arms hang naturally by the side. She can raise the right arm above her head and within twenty degrees of the left. Can raise the arm rapidly and strongly to the horizontal and uses both equally well. She can place the hand behind the back and in the opposite axilla and uses it freely in jumping the rope, in which exercise circumduction comes into play.

The length of the right humerus is ten inches and a half; the left, eleven inches and a quarter; the length of the arm, forearm, and hand from tip of acromion to tip of middle finger on the right side is twenty-three inches and a half; on the left, twenty-five inches. The circumference of the right arm at the axilla is six inches and three quarters; of the left, seven inches and a quarter. Over the shoulder and through the axilla on the right side is nine inches and a half; on the left, ten inches and a half.

CASE II. *Disease of the Right Shoulder and Right Hip.*—W. M., aged six years and a half. Admitted to hospital January 3, 1894. Hygienic surroundings good. Family history negative. Is wearing a brace on the hip. In February, 1893, it was noticed that he held the arm close to the side and could only lift it to the horizontal position. All motions of the joint were painful. His general health was good, his appetite poor. He had night-cry. In August he developed hip disease. At that time the shoulder was fixed, no motions allowed, and no sign of abscess. There was an inch atrophy of the upper arm.

January 20th.—Patient is unable to move the arm. On the anterior aspect of the body, midway between the acromion and the nipple, is a fluctuating tumor the size of a walnut.

January 23d.—Incision is made over the anterior aspect of the shoulder joint; periosteum divided and retracted, a drill introduced, and the head found partially necrosed, and the glenoid cavity filled with gelatinous material but not diseased. The motions at the joint can be freely made. All the diseased bone and gelatinous material are removed, and the abscess sac in and over the pectoralis major is thoroughly curetted and a counter-opening made in the axilla for drainage. The wounds

* Ollier. *Traité des excisions*, tome i, p. 350.

† *Medical Record*, September 20, 1890.

are packed with iodoform gauze and by March 12th all the sinuses have healed.

May 25th.—General condition good. Holds arm naturally by the side, can raise it half-way to the horizontal, can place the hand on his forehead and on opposite shoulder. There is no pain either on pressure or when he moves the arm.

From the tip of the acromion to the lower edge of the external condyle on the right side is six inches and a half; on the left, seven inches and a quarter. From the tip of the acromion to the tip of the middle finger on the right side is sixteen inches and three quarters; on the left, seventeen inches and a half. There is half an inch atrophy of the arm and the same of the forearm. Flexion and extension of the arm are about half the normal.

CASE III. Disease of the Right Shoulder.—J. J., male, aged eleven years. Admitted to hospital October 1, 1890. Mother and father both dead of phthisis. Duration of disease unknown. Has had plaster of Paris applied to the shoulder, and the pain has been relieved by day but not by night. The right shoulder is lower than the left; there is marked atrophy of the deltoid, and the acromion is prominent. There is marked muscular spasm, pain, and tenderness. The lower angle of the right scapula is lower than that of the left. There is slight dorsal curvature in the dorsal region, convexity to the left. The right arm, from tip of acromion to tip of middle finger measures twenty-four inches and three quarters; the left, twenty-five inches and a half. The circumference of the right shoulder is twelve inches and a quarter; of the left, eleven inches and a quarter. The circumference of the right arm is five inches and seven eighths; of the left, six inches and five eighths. The right forearm, six inches and a half; the left, seven inches. The right wrist, four inches and three quarters; the left, five inches.

October 6th.—Under ether an incision was made two inches long over the head of the humerus. The head of the bone was found softened and was gouged out and a drainage-tube put in. There was some gelatinous material in the joint which was also cleaned out; the glenoid was not diseased. The arm was dressed in abduction of about twenty degrees.

29th.—A Knight spinal brace was applied with a crutch for the right arm, the idea being to gradually raise the arm from the side.

November 15th.—Patient is up and about the ward and improving nicely.

16th.—Complains of headache, nausea, and vomiting.

17th.—Headache and vomiting increased. Bowels constipated, pulse irregular, photophobia, irregular respirations, retracted abdomen.

18th.—Irritable.

19th.—Less irritable, headache, retracted abdomen.

20th.—Delirious. Examination with ophthalmoscope shows double optic neuritis.

The symptoms continued and death followed November 30th, or fifty-five days after the operation, from tubercular meningitis. Autopsy twenty-four hours later.

Brain.—The sinuses filled with dark fluid clots; not adherent. The brain much congested; the convolutions slightly flattened. Scattered over its entire surface, but more abundant on the lateral surfaces, were a large number of miliary tubercles; on the base of the brain they were more abundant still, and the interpeduncular spaces were studded with them. There was a small amount of lymph and pus present. The ventricles were not distended.

Liver.—The liver was fatty and a few miliary tubercles were scattered over its surface.

Chest.—Over the left chest were numerous dense fibrinous adhesions of long standing.

Right Lung.—At the apex was a small area of miliary tubercles surrounded by fibrous tissue; a few tubercles were scattered over its surface.

Left Lung.—Studded at apex with cheesy nodules. The collection of nodules is surrounded by a layer of chronic interstitial pneumonia which has about it a considerable area of recent tubercles; these are also scattered throughout the lower lobe. The lung shows evidences of an old phthisis with recent extension.

The bronchial glands were not diseased.

One kidney was normal, the other had several tubercles on its surface and a drop of pus in the pelvis.

Heart.—Normal.

Intestines.—Moderately congested.

Mesenteric Glands.—Normal.

Stomach.—Contracted; empty. Near the pylorus on the greater curvature are several ulcers a twelfth of an inch in diameter with reddened edges.

This is a very interesting case, for the meningitis may have been due to the dissemination in the general system of tuberculous material at the time of the operation.

In all these cases the operations were done by Dr. Gibney.

CASE IV. Disease of the Left Shoulder.—L. L., female, aged twenty-four years. When fourteen years of age, in play had her arm given a pull which caused her some pain and was followed by lameness. She was examined at the time by Dr. Gibney and found to have an inch shortening, marked atrophy, pain on moving the joint, and a grating crepitation. Use of the arm, however slight, aggravated the pain, and she complained of being unable to rest at night. The muscles about the joint reacted perfectly to the faradaic current. A sling was employed without benefit. At the end of five months she was admitted to St. Luke's Hospital, and, under ether, the arm was freely moved in all directions. After this, daily passive motion was resorted to, and the failure to derive the benefit expected was attributed to the lack of vigor in carrying out the after-treatment and her desire to get home. In May, 1884, she could abduct the arm to an angle of a hundred and thirty-five degrees (about half normal); there was little rotation and very little tenderness. There was an inch and three quarters atrophy of the arm and an inch shortening. In 1892 she had an abscess in front of the joint which was opened, and the sinus still discharges. In 1893 she had another abscess and the same plan was followed, with the same result.

May 17, 1884.—General health fair. Has two discharging sinuses. Has no cough or symptoms of general tuberculosis. Works daily in a card factory and feeds a press with the left arm. The work really requires no motion at the shoulder, but is all done with the forearm. She can raise the arm half-way to the horizontal and can get the hand nearly to the median line of the back; can place it on her head and on the opposite shoulder. There is marked atrophy of the parts about the shoulder. The circumference of the right arm is ten inches; of the left, eight inches. From the tip of the acromion to the lower edge of the external condyle of the humerus is ten inches and three quarters on the right side and nine inches on the left. From the tip of the acromion to the tip of the middle finger on the right side is twenty-five inches; on the left, twenty-three inches and a quarter. She has occasional pains in the shoulder, but no serious trouble.

CASE V. Disease of the Right Shoulder.—F. W., female, aged twenty-five years. The disease came on slowly and there was no cause given, but from childhood the arm had been

weak. Since 1880 she has been unable to get the hand to the head. In 1889 she had an abscess form in front of her joint which discharged for five weeks, then healed. Has had none since. Her early treatment, as described by Gibney,* was "active and passive motion, emollients, and electricity; these means failing, forcible movements under ether; subsequent passive motion; restiffening of shoulder"; and the further note added, "seems to improve when not treated."

March 11, 1893.—General condition good; weighs a hundred and thirty pounds; works all day as saleslady; thinks she can lift as much with right as with left arm; can do no motions where the deltoid is needed. The ankylosis is complete, yet can place the hand on the head, but lowers the head a trifle in so doing. Can place hand on the opposite shoulder with the arm close to the body. Can not move the arm more than three inches from the body as measured at the elbow. The right arm, measured from the tip of the acromion to the tip of the middle finger, is twenty-six inches long; the left, twenty-seven. The circumference of the right arm is nine inches; of the left, ten inches; of the right forearm, eight inches and a quarter; of the left, eight inches and a half.

CASE VI. Disease of the Right Shoulder and Right Knee.—A. W., female, aged twelve years. Seen at hospital April 19, 1892. Family history negative. The knee disease began when she was two years old, the shoulder when eight years. She had marked atrophy of the shoulder, moderate spasm and partial ankylosis. Had pain at night in the shoulder. A sling was recommended, but never worn.

May 15, 1894.—General condition good. No signs of abscess. No joint tenderness. Can place the hand on top of the head and behind the back, but can not raise the arm to a horizontal position. Joint is painful on pressure, and she does not use it with the same freedom as the left. There is an inch atrophy of the arm and two inches shortening as measured from the tip of the acromion to the tip of middle finger.

CASE VII. Disease of the Right Shoulder and Lumbar Pott's Disease.—E. B., male, aged twenty-two years. Seen at hospital, July 15, 1893. When eleven years of age had Pott's disease, and at fifteen years, without any known cause, noticed his right shoulder was getting stiff; this continued until he was unable to move it, but does not know the exact time, but it was several years. The pain was slight and always worse at night. The arm has ever since been much weaker than the other. Never had any treatment.

May 15, 1894.—General condition fair. Is wearing a Knight spinal brace. Acts as a messenger boy. The right shoulder very much atrophied and slightly higher than the left, the lower border of the right scapula about an inch and a half higher than the same border of the left. The right arm from tip of the acromion to tip of the middle finger is twenty-six inches; the left, twenty-seven inches. The right humerus is ten inches in length; the left, ten inches and a half; the right forearm, eight inches and a half; the left, nine inches. The glands in the axilla are much enlarged, but he has never had an abscess. The sternal end of the right clavicle is partially dislocated upward. He can put the hand to the mouth, but not on top of the head. Can separate the elbow from the body three inches. The arm is very weak and he uses it but little. Never has pain and there is no joint tenderness. The ankylosis seems bony and firm.

28 WEST FIFTY-NINTH STREET.

* Case I, Gibney, Chronic Disease of the Shoulder, etc., *Medical News*, 1886. Case IV is No. 2 of same paper.

EARLY AMERICAN SYMPHYSIOTOMIES.

BY CHARLES JEWETT, M. D., Sc. D.

APROPOS of the communication which recently appeared in the columns of your *Journal* from the pen of Dr. R. P. Harris, it is of interest to note that the revival of symphysiotomy outside of Italy began with Pinard, of Paris. It is remarkable that for a period of twenty-five years after the operation was resuscitated by Morisani, of Naples, the rest of the world took little heed of the excellent work that was being done by the Neapolitan operators. Except in Italy, no symphysiotomy was performed during that time. The operation was generally looked upon as obsolete. In our country, Harris was almost the only authority who steadfastly advocated its adoption. He was nearly alone in recognizing the merit of the procedure and in stoutly defending its cause at a period when it was almost universally ignored by other obstetricians. His name will ever be inseparably connected with the history of symphysiotomy and its introduction into this country. Had Dr. Harris performed the operation when he began to advocate it, America might have been the pioneer in profiting by the example of Morisani. But not until Spinelli, a disciple of Morisani's, had visited Paris, and demonstrated the operation upon the cadaver in the presence of Pinard, did symphysiotomy begin to gain general recognition outside of Italy. In February, 1892, the first Parisian operation was reported by Pinard and in little more than a year he had done twenty pubic sections. Freund, of Strassburg, and Leopold, of Dresden, soon followed him, and as a result of the combined successes in France and Germany the operation spread over both hemispheres.

Unless Coggin's claim and others antedating Pinard's publication in the early part of 1892 are to be established, symphysiotomy came to this country, as it did to Germany, Austria, and England, by way of Paris.

But better evidence of these operations will be required than the Coggin claim is built upon. It is scarcely to be expected that the pioneer in progress in any special department of knowledge should be looked for on the frontier and not among men of specialized experience in the great medical centers. All the operations since that which has been alleged for Coggin have been done by experts. To such men we should naturally look for the first step in any new departure in the medical art.

Dr. Coggin's story bears on its face its own refutation. His report, as it appears in the *American Journal of Obstetrics* for January, 1894, makes the weight of the child 11.35 pounds, and its length 16½ inches. In other words, the child weighed four pounds more and measured two or three inches less than the average. The bi-parietal diameter is put at 5.75 inches—that is, the measure of the bi-parietal in a large-sized, adult male head. The fronto-mental diameter, however, was 3.55 inches, the usual value in the newborn. It will be noticed that some of the doctor's fractions in weights and measures are unfamiliar ones. His appliances for determining both pounds and inches must be something different from those in general use.

Dr. Harris says that he bases his acceptance of these early symphysiotomies on sworn affidavits. Is this the way scientific truths are established? Would a reputable physician in any community resort to such means to secure the recognition by his colleagues of his claims to honor? Would he not rather (if his word were not sufficient) appeal to his professional neighbors and associates? If he could not safely do this, would his allegations be worthy of acceptance under oath?

Finally, in the Coggin matter, it is difficult to explain away the findings of the official investigation published by the Medical Society of Etowah County, Alabama, where Dr. Coggin practiced at the time of the alleged operation. After careful judicial inquiry into all the facts by a committee formally appointed for the purpose, their report was adopted by the society and published in the *Medical and Surgical Age* of June last. Copies of the journal with the full text of the report can no doubt be had on application to the office of publication, Anniston, Ala. It was republished in full in the *New York Journal of Gynecology and Obstetrics* for August, 1894. A few passages are all my present space permits me to mention.

Dr. Coggin first announced that his pubic section had been done in Freedman, Etowah County, Ala. The committee, on diligent search, were unable to find any such town in Alabama. The doctor afterward stated that the place where Mrs. Carey Hughes, the alleged patient, lived was Rocky Ford on Wills Creek. No person of that name had ever been heard of in that vicinity.

The doctor said he had been assisted in the operation by Dr. Slaughter. Dr. C. J. Slaughter, of Aurora, Ala., is the only Dr. Slaughter who has ever been known in that entire region, and he denies that he assisted in an operation of the kind, or ever heard of one in that section.

Among the births reported to the health officer of the county by Dr. Coggin no mention was made of the delivery of Mrs. Hughes.

The president of the society invited Dr. Coggin to be present at the June meeting, to exhibit his patient and to produce such other evidence as he might have to establish his claim. He was assured a fair hearing and the official indorsement of his claims should he furnish proof of them. He failed to appear.

The report concludes with a brief account of Dr. Coggin's career. His reputation in Alabama is shown to be of the most unsavory character. It appears that he practiced medicine for some time before he had a diploma, and when, in 1891, he finally produced one, it was apparent that it had been obtained by surreptitious means.

Whatever proof may be adduced in support of other operations antedating Pinard's, it would seem plainly impossible to establish Coggin's title to the honor he has sought.

The Southern Surgical and Gynecological Association will hold its seventh annual meeting in Charleston on November 13th, 14th, and 15th, under the presidency of Dr. Cornelius Kollock, of Cheraw, S. C.

SOME CRITICAL AND DESULTORY REMARKS ON RECENT LARYNGOLOGICAL AND RHINOLOGICAL LITERATURE.

By JONATHAN WRIGHT, M.D.,

BROOKLYN.

(Second Paper.)

THERE is theoretically no reason why we should not occasionally meet with cases of chronic fibrinous laryngitis. The wonder is in these days of literary activity among special workers that such cases should not have been more often reported. Fibrinous bronchitis has long been a curiosity to be observed in almost any medical museum of pretension. Croupous rhinitis, chronic in its course, is not at all unknown. But Schech, so far as I know, has reported in the *Deutsch. med. Woch.*, March 1, 1894, the only case that can be rightfully placed under that category. It is probable that, as in the case of fibrinous rhinitis, we will hereafter read of many more cases.

In Schech's case the symptoms of hoarseness had lasted about six weeks before the patient, a woman, came under observation. There had been attacks of dyspnoea, which were entirely relieved by coughing out white masses. After two or three days dyspnoea would again come on, to be again relieved in the same way. The formation of the membrane was principally upon the left false vocal cord and extended into the ventricles as a plug; the other parts of the larynx were normal. It could with difficulty be removed with long forceps, but would form again in a day. After trying many drugs, ten per cent. nitrate-of-silver applications finally brought about a cure. There was nothing especially to be noted in the microscopic examination of the false membrane. It contained streptococci and staphylococci, and Schech, following the fashion of the day, ascribes to these organisms the occurrence of this pathological curiosity. This ætiological habit has become absurd, since streptococci and staphylococci have been found in a large number of apparently normal throats. Such a pathological condition might almost as well be ascribed to the presence of teeth in the jaws or saliva in the mouth.

There are several points of interest about the case of Epithelioma of the Larynx in a Man of Twenty-three, reported by Luc in the *Archives internationales de laryngologie*, vol. vii, No. 1, p. 21. The age, so far as known, is the earliest reported. The case was regarded as an ordinary one of laryngeal tuberculosis. This diagnosis was made in spite of the fact that dyspnoea was so urgent that tracheotomy had to be performed; there were no signs of pulmonary involvement.

Certainly it has been my experience, and I believe that the chances are ninety-nine to a hundred in any laryngeal case with so much stenosis as to require tracheotomy and yet no pulmonary signs, that the case is not tuberculosis, whatever may be the local appearances or the history. I have had two cases of tracheal and one of laryngeal disease referred to me with the unquestioned diagnosis of tuberculosis. All had marked pulmonary signs. In two of the cases I did not question the diagnosis; the patients died long

after tracheotomy had been performed, and the autopsy proved the cases to have been syphilis. They died for want of a diagnosis, and were reported in the *New York Medical Journal* for June 13, 1891. In the third case, recently seen on account of the urgent dyspnoea, some slight points in which the local appearance differed from those usually seen in laryngeal tuberculosis, the mortifying experience of the two previous cases led to a tentative diagnosis of syphilis, and the patient promptly recovered under the iodide of potassium. The rule is a very good one that laryngeal tuberculosis rarely produces a dyspnoea which requires tracheotomy. I have never seen or read of a case of laryngeal tuberculosis in which the larynx was so extensively involved as in this case without some pulmonary signs. None of the cases, even the very doubtful ones, of primary laryngeal tuberculosis has reached such a stage as to cause intense dyspnoea. The fact that Luc stands among the foremost laryngologists of the world and has made an especial study of laryngeal tuberculosis shows how easily, in a large routine dispensary service, even the acute observer makes a slip in apparently very suggestive cases. Carcinoma, syphilis, and tuberculosis each have cases on the diagnostic border-line of local appearances in the larynx which require the greatest care and experience in differentiation. The diagnosis in Luc's case was not made until after extirpation of the larynx on account of extensive disease. No bacteriological examination was made. Absence of bacilli in the first stages of laryngeal tuberculosis would be of no value, but absence of tubercle bacilli in the deep ulceration and extensive destruction usual in the advanced stage of Luc's case would, with a trustworthy microscopist, almost exclude tuberculosis.

Gouguenheim, in a paper read before the International Congress at Rome and published in *Annales des maladies de l'oreille*, etc., April 1, 1894, supports assertions previously made by Krause and by Heryng incidentally, that excision of the œdematous swellings of the arytenoids in tubercular laryngitis is not only, with proper instruments, perfectly practicable, but is painless; and, what is still more to the point, in the large majority of the cases relieves the excruciating dysphagia and the dyspnoea when it exists. He asserts that the wounds usually heal in a week or two, and advocates the procedure in proper cases as indicated for the relief of those conditions, without any reference to the radical cure of the case. He is careful not to advance any assertion as to this latter point, the possibility of accomplishing which has been demonstrated satisfactorily by Heryng.

It is certain that the procedure should be more extensively tried, but in this country the chief obstacles to it are: 1. Overcoming the reluctance of the patients themselves. 2. Overcoming the very strong and possibly justifiable sentiments of American laryngologists. 3. The great difficulty to obtain beds in the wards of the hospitals so that these cases may, as is necessary, be treated as "in-patients."

In the present state of laryngological opinion in this country one would be taking a heavy responsibility in operating thus upon private patients.

Nothing, however, could really be worse than the inac-

tion or futile medical treatment which these sufferers now endure. It is the reproach of American laryngology.

Gouguenheim explains the relief after pain by this operation in the light of the anatomical demonstrations of diseased sensitive nerve filaments recently made by Dansac (*Ann. des mal. de l'oreille*, No. 12, p. 1041, December, 1893).

Dr. Dansac announces somewhat emphatically that in tubercular inflammation of the arytenoid summits there is a "neo-formation of hypertrophied nerves and perineurotic sclerosis governed and directed by hypertrophied cylindraxones." This he has demonstrated by a new method of staining with chloride of gold. I confess the author's very enthusiastic statements would be a little more satisfactory had he compared sections of normal mucous membrane of the arytenoid region stained in the same manner. The reproduction or rather new formation of nervous tissue in tubercular inflammation is to me a novel statement. Inflammation of the terminal filaments of all the nerves is not a surprising demonstration.

In the *Journal of Laryngology* for April, 1894, Heryng continues his relation of cases of laryngeal tuberculosis cured by surgical interference. His record of twenty cases cured, out of two hundred and fifty-two operated on, makes an imposing array. To judge fairly, however, of the treatment would require a laborious study of the two hundred and thirty-two cases operated on and, inferentially, not cured and not reported. Most of us would desire to see Heryng and Krause at work with their cutting forceps, and observe how they judge what region of the larynx is diseased and what not; how they can even conjecture that they have got it all out.

In spite of Heryng's evident honesty of conviction and the courage with which he works, it is doubtful if he can ever inspire other practical laryngologists with them by reports of cases. Ocular demonstration, extending over a considerable period, is necessary to a conviction which would be firm enough to withstand the discouragement of nine failures out of ten.

Fraenkel, in No. 3 of his *Archiv*, writes a very instructive paper on The So-called Prolapse of the Ventricle of Morgagni, in which he quotes from all the cases recorded, and gives a drawing of the post-mortem appearance of a case of his own, together with the appearance of a magnified section of the ventricle. He sums up the results of his studies of the cases reported and of his own as follows:

"I am therefore convinced that what is commonly understood by the name prolapsus ventriculi is either a chondritis vocalis superior hyperplastica, or a laryngitis lateralis hyperplastica, or a chondritis ventricularis inferior hyperplastica, or a combination of all those conditions. I mean thereby that the 'prolapse' always owes its origin to a hyperplasia of the connective tissue, and that this hyperplasia may have its seat on all the three walls of the cavity of the ventricle."

He thinks that the sudden onset of symptoms reported in some of the cases, which would apparently militate against his theory of a slow inflammatory process, was due, if the

history was accurate, to the sudden engagement of the swelling in the chink of the glottis.

It would seem that Fraenkel is probably right in his assumption of a hyperplastic process; but it is not unreasonable to suppose that some violent fit of coughing may cause a sudden protrusion of the swelling from the ventricle by the rupture of some of the submucous areolar tissue which binds it to the perichondrium. It is, of course, absurd to suppose that the ventricle is turned inside out as can be done to the finger of a glove.

In Kayser's Report of Cases in Gottstein's Clinic (*Monatssch. f. Ohrenheilkunde*, etc., March, 1894, No. 3, p. 90) there is a short notice of a group of laryngeal cases which should be brought into more prominence in the laryngeal literature of the day. He very properly calls them cases of laryngitis juvenilis nodosa, and says: "By this I understand an affection of the larynx occurring especially frequently in children and young people, in whom, combined with symptoms of a more or less severe catarrh, small yellowish-white nodules, so-called singers' nodules, may be demonstrated in the region of the anterior third of the free edge of the vocal cords. Of the observed nine cases (in two years) five were boys and four girls; the youngest was five years old, and the oldest a fifteen-year-old girl. The course is always chronic; usually the nodules and the hoarseness disappear of themselves in the course of time."

Dr. Rice has recently drawn attention to them as occurring especially in adult sopranos. In the dispensaries we see them in newsboys. They do not have exactly soprano voices in New York, but their "*gesangähnliche Productionen*" might perhaps be put in that category along with that of their more musical brothers in the church choirs. It is probable that puberty, by changing the shape of the larynx and abolishing the soprano quality of their voices, gives rest to the friction spot on the vocal bands, and so cures them.

Kjelman, in the *Berl. klin. Woch.*, No. 13, 1894, p. 316, reports two cases of epilepsy in children—one, twelve years old, cured by cauterizing swollen inferior turbinated bones; another, six years old, cured by preventing compression of the nostrils by the hands during sleep—a habit the child had acquired.

These are curious and interesting cases. It would probably be found that many epileptics have curable foci of irritation in various accessible situations were all systematically examined by the ophthalmologist, rhinologist, otologist, genito-urinary surgeon, gynecologist, or other expert explorer of semi-closed cavities; nevertheless, back of them all lies the central vulnerability or sensitiveness to slight abnormal impressions received from the periphery, which evidently constitutes the chief ætiological factor. Clinical experience teaches and common sense recognizes that cases such as Kjelman's are and must be exceptional.

Cozzoline, in the *Archivio italiano*, April, 1894, reports a number of nasal neoplasms examined histologically and classified, some as granulomata and some as sarcomata. They were made up of small round cells chiefly.

In growths of this character within the nose, unless they are far advanced, the microscopic examination is of

small value in differentiating their nature. Whether we have benign granulomata, such as granulation tissue in syphilitic lesions and lymphoid growths—the so-called adenoids of the nasal pharynx—or whether we have a beginning small round-celled sarcoma, is a question frequently only to be solved by the use of iodide of potassium or the subsequent history of the case.

Under the head of bleeding polypi of the nasal septum, Schadowaldt, Alexander, Scheier, and Heyman contribute each a paper to the third number of Fränkel's *Archiv*. Altogether twelve cases are reported, of which ten were in women of different ages, mostly young. Lange is quoted as reporting eight out of ten of his cases as being on the left side. The larger number were situated in the "Kieselbach" position—i. e., just where the epidermis joins with the mucous membrane of the septum; Schadowaldt suggests that they are due to the irritation of the finger-nail or other irritating agent from without. He says also they at times grow very rapidly, although they are entirely benign. Scheier and Heyman speak of their occasional prompt recurrence. We may conjecture that this was from incomplete eradication. The most prominent symptom was hæmorrhage—sometimes nasal obstruction. The galvano-cautery, either with the snare or with the platinum point, was used in destroying them and in cauterizing their bases. As for the microscopic examinations, the accounts agree pretty well in essentials, but the nomenclature is varied, one being called by the formidable name of lymphangioma teleangiectatum. The description of their histology compares pretty closely with that of three growths I remember to have examined, one for Dr. George A. Richards and two for Dr. Wendell C. Phillips. They are covered with epithelium, usually of stratified pavement cells, sometimes sending digitations down into the stroma. Sometimes the surface is smooth, sometimes thrown into deep folds or furrows closely resembling, as they do in other ways, the mulberry hypertrophies at the posterior ends of the inferior turbinated bones. The stroma is of fibrous tissue, sometimes separated by spaces described as lymph spaces, and lined with endothelial cells. Probably these are areas of œdematous tissue such as occur in the mucous polypi of the middle turbinated bone. There was a varying amount of round-cell infiltration, probably due to the degree of inflammatory action. The development of the blood-vessels varied in amount, but was always marked and the striking feature of the growths. Heyman says he found no glands in any of them. This certainly is not the rule, although he examined three of his five cases. From this symposium, and from my own observations, I am pretty well convinced that they are inflammatory growths, and if we keep this in mind, and that their marked characteristic is the dilatation of the blood-vessels, it is not of much consequence whether we call them fibrous angiomas, angiomas, fibromata, or granulomata, or the other *sesquipedalian* designation mentioned above.

Rossi, in the *Archivio italiano di otologia* for April, 1894, reports two similar growths from the larynx. I have in my possession sections of such a growth removed by Dr. Richards, also from the larynx.

American rhinologists can not but smile at the article in Fränkel's third volume on the treatment of deviations of the nasal septum by means of the electric trephine and drill. Spiess says that ten years or more ago he heard Goodwillie say that this method was used in America, but he has been unable to find any further account of it, so he worked the problem out for himself. Bronner a year or two ago made the same remark in England. Their instruments resemble marvellously, though they are somewhat crude, those that form part of every American rhinologist's armamentarium—a singular example of how difficult it has always been to make enlightenment travel toward the rising sun. The normal direction seems to be from the Nile to the Golden Gate.

There is a certain freedom from carping criticism enjoyed by our transcontinental *confrères* when they borrow from us which those of us who borrow from them may sorely envy.

Krause (*Berl. klin. Woch.*, No. 16, 1894) makes a very interesting communication of his experiences in the cure of chronic laryngitis by means of deep incisions into the vocal cords parallel with their edges through any thickened, congested, or varicose area that may exist. The cure is supposed to be effected by relief of congestion in the process of cicatrization. Under the lead of Dr. Bosworth we are accustomed in this country to cure chronic laryngitis by correcting deformities, or curing diseases of the nose and pharynx in cases which do not depend upon some specific constitutional dyscrasia or occupation involving the excessive use of the voice. It may be said in further criticism of Krause's remarks that the cases of chronic laryngitis having their sole or chief pathological seat upon the vocal cords are comparatively rare. Much more frequently do we have involvement of the posterior wall or the ventricles or, indeed, of the whole larynx. In these cases surely scarification of the cords can not be expected to accomplish a great deal. Nevertheless, in a few selected cases it may easily be imagined that the procedure would be of advantage.

THE EFFECTS OF ALCOHOL ON MAN: AN EXPERIMENTAL STUDY.

By W. F. WILKINS, A. M., M. D., M. S.,
KANSAS CITY, MO.

In attempting to discuss this important but much-debated subject, I do not presume to have solved all the complicated problems legitimately belonging to the subject, but have largely restricted myself to facts and conclusions reached during an extensive experimental study on the living subject. The men on whom experiments have been made were for the greater part healthy, except for the derangements the aetiology of which can be directly traced to the inordinate use of alcohol. This has been supplemented by a study of the morbid anatomy of fifty-one post mortems that I have been able, by the courtesy of the coroner and undertakers, to make. These bodies were selected with due reference to the subject under consideration. This study of the morbid anatomy of those who died

as chronic inebriates has yielded knowledge obtainable nowhere else, but of such a mixed pathological character that it has been extremely difficult to trace out those effects for which alcohol alone is responsible. How well I have succeeded remains for my readers to judge. It will be seen that some new ideas in physiology have been advanced, a few pathological questions heretofore unanswered made plain, while many are left still in the dark, and most likely will so remain till the State, in its superior future wisdom, shall deliver condemned criminals to scientific societies for experimentation. I have deemed it proper, in order to proceed as systematically as may be, to first inquire as to the effect of alcohol on the microscopical elements of the minuter parts of the body; second, on the tissues; third, on the digestive tract and secretions; fourth, on the organs; and, lastly, on the mind and foetal life. Then make a few remarks on the effects as a whole.

On the Neurine.—The most important effect of alcohol on the tubular neurine is a shrinking and hardening of the neuron itself. This shrinking is in direct ratio to the concentration of the liquor, and the length of time it is subjected to its influence. If this is habitual and continuous, it will have two ultimate results—viz., a narrowing of the lumen of the tubules, and impairing the function of the intertubular vesicles, thereby limiting or entirely suspending their capability to transmit impulses from the nerve centers. Now, if we consider that the encephalon, medulla, and spinal cord are all of the same material as the neuron and of course subject to the same deleterious effects as the nerves, we can appreciate the great mischief made possible by this effect of alcohol. The shrinking and consequent hardening above mentioned are the direct results of the well-known law of exosmosis. The water in the nerve substance has a greater affinity for alcohol than alcohol has for water, consequently there is more water expelled than alcohol taken up; hence a shrinking of the parietes of the ganglion and substance of the neuron and a narrowing of the lumen of the tubules. By the inordinate and continuous use of alcohol there is a dissolution of the vesicular neurine by the dissolving out from the intercellular contents of phosphorus, protagon, and lecithin. The extent of this disorganization is in proportion to the amount used and strength of the liquor. Some such effect, however, is always to be expected by the moderate use of alcohol; but the results are not always manifest to the casual observer, because Nature, with her vast capacity for recuperation, speedily restores the vesicular neurine to its normal proportions. But, as we shall see farther on, the prolonged excessive use of liquor causes permanent injury to the great nerve centers that is never repaired. The free phosphorus can be detected by its luminous appearance, while the urine from an old inebriate is being deposited on the ground in a dark place. Some observers assert that they have seen this luminous appearance in the exhalations from the lungs of the chronic inebriate. I have no doubt of the truth of the assertion, although I have never had the privilege of confirming it, but have frequently verified the fact as to the free phosphorus in the urine—a sort of Gehennic halo hovering over the discharge, or, to vary the

figure, a ghost, luminous and hell-born, rising up to warn the enfeebled intellect of its final imbecility. This indirect consequence of the disintegration of the cell neurine will be to greatly embarrass or entirely suspend life in the whole vegetative system supplied by the nerves affected. This is accomplished by the disorganization of the neurodynamia in the ganglionic centers.

On the Textometer.—I am going to use the word textometer instead of the word protoplasm of Remak, sarcode of Dujardin, cytoblastema, blastema, liquor sanguinis, or any of the many words of modern times, because it expresses the idea I wish to convey—*i. e.*, textometer literally means the mother of tissues, while the other words include only one or more of the characteristics of that fluid, the combining of chyle with which is capable of replenishing the tissues of any part of the body with proper pabulum from the non-nucleated contents of the vesicular neurine to the osteoblasts of the femur. The word textometer, then, will represent a combination of chyle with the blood after the combined fluid has passed through the lungs. With this explanation, by the way, I will now consider the important changes which take place when alcohol is absorbed into the circulation. The parietes of the cells inclosing the germinal matter are dissolved, the albumin not in combination is coagulated, the red blood globules are deprived of a part of their contents, which mingles with the liquor sanguinis, leaving them shrunken and wrinkled; the organizability of the textometer is impaired. The immediate result of all this is to fill up the connective tissue with foreign compounds and favoring the growth of the various tumors and neoplasms. The chemical selective power is either impaired or entirely destroyed, rendering wounds difficult to heal. This is caused by one of two conditions. In one instance there is an abundant proliferation of pure germinal matter, which can not be organized owing to the effect mentioned above, and degenerates into pus cells. This is the direct result of overstimulation. In the other instance the *vis metabolica* is suspended, because, as seen before, the ganglions are deprived of phosphorus and protagon by the direct solvent action of alcohol. This deficiency prevents the proper organization of the neurodynamia in the gray matter. Hence the injured soft parts disintegrate, neoplasm forms in the wounds, while the broken bone receives no osteoblasts with which to repair the damage.

On the Capillaries.—Alcohol paralyzes the vaso-constrictors and at times stimulates the vaso-dilators of the capillaries and arterioles in the immediate vicinity of the affected parts, causing a hyperæmia, afterward producing a stasis of the circulating fluid. If this condition continues a certain length of time, varying somewhat according to the nature of the affected tissue, inflammatory processes are set up, with consequent disintegration of the substance of the part, gangrene, and sloughing. A secondary effect in the case of stasis in the capillaries of an organ is the diminution of proper pabulum by the inactivity of the communicating plexuses. This remotely results in either a permanent hypertrophy, as in a case where collateral circulation has been established, or in atrophy, as in a case of ulceration and final destruction of a part of the vas-

cular system in the organ. In the cases of hypertrophy the alcohol has a selective preference for the vaso-constrictors, paralyzing them, while it stimulates the vaso-dilators. Thus we have the lumens of the blood-vessels and capillaries fixedly enlarged to their greatest extent; the organs enlarge to an enormous proportion; Nature struggles to rid itself of the foreign matter, which rushes in from all parts of the system; the cell walls collapse and coalesce, forming the so-called giant cells, which accumulate into neoplasms; destructive metamorphosis takes place; so we have here and there abscesses, with an extensive proliferation of pus corpuscles, with all the train of evils consequent upon such a condition, but too numerous to mention. If, on the other hand, the selection is made to paralyze the vaso-dilators and stimulate the vaso-constrictors, then we have atrophy of the organ, entailing on the animal economy the evils the kind and extent of which is indicated by the function of the organ itself. Just why the alcohol should select a set of nerves on which to act at one time and a different set at another does not at once appear, but it is a well-authenticated fact that it has a selective power. Most likely the explanation lies in the chemical or electrical condition of the white substance at the time of action, or it may be attributable to the different chemical constituents of the liquor used. The power resides in the textometer in connection with the *vis metabolica* of the cells. This power enables the osteoblasts to make their way from the receptaculum chyli to the distant broken bone, there to repair the damage. The substance of which nails are formed does not go to build up muscular tissue; neither is the enamel of the teeth found in the vesicular neurine. As to the nature of this force all we can say is,

"The hand of God
Has written legibly that man may know
The glory of his Maker."

On the Intestinal and Digestive Tracts.—The effects of alcohol on the digestive tract and intestines are various, according to the nature of the secretions and parts with which it comes in contact. In the mouth the ptyalin in the saliva is precipitated, forming an insoluble compound that has no proper place in the animal economy. The small amount of albuminous matter is coagulated, rendering the saliva less potent in its action on starchy foods, and, although most physiologists attach but little importance to this secretion except as a sort of moistener and mixer in the preparation of food for deglutition, yet it has an important function to perform in the fitting of certain foods for digestion that are afterward transformed into glycogen by the liver, and I am not sure but that starch is to some extent at least turned to sugar in the mouth by the saliva. Certain it is that the fermentative power of ptyalin is neutralized by alcohol whenever they come in contact. Now, as starch can not take the place of sugar in the system, and as a mixture of ptyalin and alcohol can not be used in any of the tissues, in so far an injury is done by the destruction of ptyalin as a ferment. In the stomach the pepsin is thrown down and the water, which is nine hundred parts in a thousand, forms its usual mixture with alcohol, which is

a detriment rather than of any use to digestion of any of the foods. The peripheral nerves in the gastric follicles are paralyzed, and the flow of the stomach secretions are nearly if not quite suspended. The sympathetic filaments in the stomach are stimulated and a retrograde peristaltic movement is excited and the contents are ejected. In old inebriates the liquor is thus rejected time and again when they attempt to take their morning potations, and only after repeated efforts are they able to retain any food or liquor. After they have thus forced down a few doses they can take nourishment and go about their business. This condition is due to the paralysis of the vaso-dilators, while the constrictors are stimulated, shutting out the gastric juice. The tongue, mouth, and œsophagus are dry and hot; the stomach is inflamed and covered with a tough mucus, streaked here and there with a bloody slime, the remains of ruptured arterioles in the mucous follicles. So soon as the liquor renders the motor filaments less sensitive, and after the morbid secretions have been thrown out of the stomach and the vaso-dilators rendered active by the repeated attempts to retain the liquor, it finally "stays down" and the man feels more comfortable. At times a dozen potations are necessary to "tone up" the stomach that it may receive and digest food. I leave my readers to imagine the picture of the total wreck of the man or woman who persists in the course indicated above three hundred and sixty-five days in the twelve months, year after year. I will now consider the effect of alcohol

On the Small Intestine and its Secretions.—The duodenum will receive the larger part of the consideration under this head, as the pancreatic secretion is discharged into the intestines at this point of the *primæ viæ*; the bile also is poured into the duodenum, thus making the "second stomach" a very important part of the digestive apparatus. The effect of alcohol on the secretions that find their way into the duodenum is disastrous to the proper digestion of the oleaginous foods, and is responsible for the fatty degeneration of the heart and other organs of the body, as we hope to make manifest below. The pancreatic secretion is nearly entirely coagulated by alcohol, rendering the pancreatin, its active proximate principle, inert, so far as emulsifying fat is concerned. It is true the coagulated secretion is redissolved into its former elements by pure water; yet it is impossible to restore it in the presence of alcohol, as there is a mixture of water and alcohol in which the secretion will not dissolve. As noted above, the gastric ferment is rendered ineffective by the precipitation of its pepsin, and now, coming in contact with the bile, defective as it is, another important change takes place—viz., the bilirubin and biliverdin are both precipitated and form an insoluble compound with alcohol, and whatever potentiality resides in these two proximate principles is lost to digestion. I wish to add, however, that this precipitation does not take place if the peptones of the gastric secretions are actively present. Although the exact changes wrought by the different constituents of bile have not been made out by physiologists, still there is enough definitely known to regard bile as essential to complete digestion. The fact is, if man were deprived of that secretion, he would immediately degenerate and

finally die of inanition. There is an effect of alcohol on all oleaginous substances in the duodenum of which I wish to speak in special terms, and this seems to be the proper place in which to make the statements. The stearin of the fat—that proximate principle which gives to ordinary adipose tissue its firmness—is dissolved by alcohol out of the fat globules. This dissolution is probably aided by the duodenal secretions. The remainder of the fat becomes a foreign body in the circulation, and, being a compound of palmitin and olein only, does not possess that property by virtue of which it is attracted to the adipose vesicle, but is deposited in the different tissues, in the various cavities, in the different organs, and even in the ventricles of the heart and in the great blood-vessels—thus constituting that dreaded pathological condition known as fatty degeneration. Now, the opinion of the author in regard to the function of bile briefly is this: It gives to properly emulsioned oleaginous substances that property by the aid of which it is enabled to take its place in the vesicles of the adipose tissue, there to perform its physiological and mechanical functions. That the bile has other duties to perform is well known, but I will not discuss them here. In precipitating the coloring matter of the bile, as above described, by alcohol, it loses its property to impart to fat the *vis metabolica* so necessary to its proper function. This degenerated fat condition is especially true of consumers of inordinate quantities of beer or wine; more so after middle age than before. It is also noticeable that those people whose fat hangs in flabby looseness on their bodies succumb very promptly under the surgeon's knife, either in minor or major operations. A recovery in any severe illness or in epidemic diseases is the exception rather than the rule. Yet we are met with the assertion, true no doubt, that many inebriates live to a ripe old age. The fact, however, is this: Those who reach a great age and die inebriates are promptly reported to the Associated Press, and we all hear of the remarkable fact, while the nine hundred and ninety-nine who go down to the grave in a mass of highly nitrogenized filth, from the direct or indirect effects of alcohol, receive little or no attention from the public as to the cause of their death.

For want of a more suitable place, I append the notes of two out of the fifty-one post mortems as types of spirit and beer drinkers, respectively. At the examination were present Dr. A. L. Hunt, Dr. Sawyer, Dr. Howard, and others as students.

Mr. W. W., a drinker of spirits for twelve years. His former physicians had made out a diagnosis of phthisis pulmonalis. The body was extremely emaciated, with the skin tightly drawn over the bones. In making the incisions not a particle of fat was to be seen, only a suggestive yellow line under the skin. On opening the abdominal and thoracic cavities, the absence of any liquid was remarked. The man seemed to have dried up completely. "The well-springs of life" were indeed dry. The lungs were crowded with miliary tubercles. The same deposit was found in the intestines, mesentery, and pleura. Adhesions were everywhere in the thorax. The heart, except a slight atrophy, was normal. In the ventricles, however, there were three ounces and five eighths of pseudo fat. In the aorta was a cast or plug of the same material that had acted as an

embolus, no doubt causing instant death. This fat was soft, and under the microscope showed no stearin. The plug in the aorta was pulled out, and was about two inches long. The body of the beer drinker weighed in life two hundred and twenty-five pounds. While making the long incision through the five inches and a half of fat the oil followed the knife, although the weather was cold. All of the muscular tissue and the different organs were infiltrated with this degenerated fat. Soft, fatty tumors were found in the liver, spleen, intestines, and mesentery. The heart contained eight ounces of degenerated fat. The lungs were normal. No adhesions of the pleura. Both of these men dropped dead from aortic embolism.

It is not thought necessary to accumulate evidence in support of the statement that the excessive use of alcohol in the form of malt or spirituous liquors produces that pathological condition known as fatty degeneration, and that, on account of the degeneration of the fat, it is deposited in abnormal places, not answering the uses of mechanics or physiology in the animal economy, as does the true adipose tissue. I will only add this in dismissing this part of the inquiry: In the above-described condition, the aetiology of which can be referred directly to the excessive use of alcohol, will be found the explanation of those conditions known as embolism, thrombosis, and apoplexy.

On the Liver.—In addition to what has been above written of the effect of alcohol on the liver I wish to record only a few facts. The glycogenic function of the liver is modified and restricted by the excessive use, continued any length of time, by preventing the rehydration of glycogen, without which it can not be taken up by the capillaries and put into the circulation. This result is caused by a union of the alcohol with the water, which, as we have seen, can not be used in any physiological process. Not that this mixture is not absorbed and put to some use, but I wish to be understood as saying that when a mixture of alcohol and water is used it produces a pathological result instead of a physiological one. There is a chemical or vital action affecting the production of biliverdin that takes place when alcohol finds its way into the liver—viz., it prevents the oxygen of the blood and water (*i. e.*, pure water)—from uniting with the bilirubin to form the green coloring matter of the bile. We know that the proximate principles of the bile are essential to life. Hence we must conclude that even the small quantity of alcohol that finds its way into the liver is inimical to life. Now, as to the well known effects of alcohol represented by the words “gin liver, hobnail liver, whisky liver, etc., we deem it unnecessary to speak, merely adding that the neoplastic deposits indicated by the above names are a result of the paralysis of the vaso-dilators of the absorbents directly concerned in the metamorphic analysis of the parts.

On the Kidneys.—The first and most frequent effect of alcohol on the kidneys is a polyuria, that *per se* is of little consequence unless it becomes chronic, which, unfortunately, is apt to be the case. That there is a pathological condition of this character is easily established. The excess of the urine over the liquors imbibed is represented by the mixture of alcohol and water—less the alcohol—and is generally about ten per cent., according to the result of distilling the urine. This is discharged, because, as we have seen, it

can not be used in the animal economy. When this polyuria becomes chronic and other changes favorable take place, we have a glycosuria or diabetes insipidus, and later on diabetes mellitus. Not that all inebriates have diabetes mellitus, but, when the conditions are as named—*i. e.*, inordinate use of alcohol in a proper subject—the result is inevitable, and we have the conditions on which diabetes mellitus depends.

To these conditions I now invite your attention. I have shown above that lecithin is separated by alcohol from the vesicular neurine. This proximate principle readily unites with the oxygen of the blood, forming with water nitrous oxide. I have also shown that phosphorus is set free by alcohol, which forms a combination with the nitrous oxide, producing free phosphoric acid, which, according to the latest and best authority, is a potent factor in the production of diabetes. This diabetic effect will be augmented by the action of alcohol on the medulla. Liquor has a selective action on this organ, and, through direct and reflex action, maintains a profuse diabetes. There is one other prominent factor in the production of diabetes, and that is the accelerated movement of the circulation through the liver. The glycogenic function of that organ is performed deliberately and accurately when done physiologically, converting all the glucose into glycogen, and storing it away for future economic uses. When alcohol is used to excess the hepatic circulation is greatly excited, in common with the whole circulation, however, hurrying the blood forward, carrying large quantities of unchanged glucose with it to be discharged by the kidneys, and many times is of itself the cause of diabetes mellitus, or possibly more frequently exciting an acute nephritis. The above are the three conditions on which diabetes mellitus depends, so far as those causes are due to the use of alcohol. This disease has heretofore been considered incurable. The last purely physical effect to which I wish to invite your attention is

Muscular Degeneration.—Excessive drinkers in the stage of their decline—when they become bent and aged before their time and are rarely able to perform manual labor on account of the atrophic condition of the muscles—are in a state of muscular degeneration which results from three causes: The arterioles and capillaries which carry in pabulum with which to repair the muscular waste are in an atheromatous condition, while some of the plexuses are entirely destroyed by the results of adhesive inflammation. Hence there is no adequate supply of material with which to build up the wasted muscular fibers. Then the vaso-dilators and constrictors, by the action of which muscles are stimulated to action, are generally in a chronic state of paralysis. If the above conditions were not present, the deposition of the degenerated fat in the muscular cells would preclude the possibility of performing any labor. This is particularly true of beer and wine drinkers.

On the Encephalon.—After the period of excitement and stimulation, which is shared alike by all the organs of the body and the mind, comes what I shall call the paralytic condition. Alcohol has a selective affinity for the vesicular neurine of the cerebellum, and affects it much more

readily and extensively than it does the cerebrum. The intellect may be comparatively clear, while the attitude and locomotion are nearly if not quite destroyed. This, of course, results from a partial if not complete paralysis of the motor centers of the base of the brain. In attempting to stand erect, the inebriate sways from side to side and forward and backward. In attempting to walk, he wobbles in a peculiarly rhythmic manner, stumbles, and finally goes down in a helpless heap from want of muscular co-ordination. In chronic alcoholism we have a degeneration of both the vesicular and tubular neurine in the lateral columns of the anterior pyramids. This would be termed an *antero-lateral neurosis*, I suppose, but it is not strictly the fact, as there is, for the time being at any rate, a destruction of the nerve cells, or rather of the intercellular contents. This pathological condition, you will readily perceive, is much more destructive and far-reaching than a mere irritation or neurosis proper. This degeneration results in the suspension of that harmonious action of the intercellular contents of the nerve centers so important in the organization and distribution of the neurodynamia, thereby suspending the complicated actions of the extensors and flexors, and, through the spinal nerve centers, embarrassing the act of attitude. Unless a lethal dose has been taken, the effects are in a great measure only temporary. Herein the result is different from the effects of alcohol on the cerebrum. It is the opinion of the author, founded upon long observation and close study, that damage done by chronic inebriation to the delicate neurine of that part of the encephalon where reside reason, memory, judgment, understanding, perception, will, love, and the soul—I say damage done to the throne of these can never be repaired. Neither can there be a reparation of the *morale* of the chronic inebriate except by the interposition of Heaven, from whence all power emanates.

On the Embryonic Cells.—After the spermatozoa have reached and penetrated the ovula this union constitutes the embryo, and contains within itself the *vis metabolica* to appropriate to its own use pabulum received from the many accessories to embryonic life. The umbilical vesicle, amnion, urachus, chorion, decidua vera and reflexa, placenta, and the mother herself are these accessories, and absolutely necessary to the embryonic development; but any one or all of these can not add one single capability to the embryo, nor does one or all of these add a single power to its *vis metabolica*. The capabilities are all invested in the spermatozooids and ovules by the parents at the time of conception. This being the undeniable fact, we conclude that any deficiency in the full-grown babe will represent a deficiency in either the spermatozooids or ovules, or both. Now, I have shown elsewhere that alcohol will dissolve the contents of the vesicular neurine, and that three of its essential parts—viz., protagon, lecithin, and phosphorus—form an insoluble compound with a mixture of water and alcohol, and is excreted by the emunctories. These proximate principles are essential to the brain substance and the neuron everywhere in the body; without these there can be no nerve force organized or conducted. This disintegration incapacitates the nerve to perform any of its functions, and

the incapacity or paralysis continues till the alcohol is withdrawn and Nature has had time in which to restore its activity. My position briefly, then, is this: that if conception takes place at the time one or both of the parents were intoxicated, or have been for a length of time sufficient to cause a deficiency in the essentials of the nerve centers mentioned above, there will be a corresponding deficiency in the child. Not that all children of inebriates are weak-minded or idiots; but when the conditions are as stated, a weak mind or complete idiocy is the inevitable result. This law can be verified in the practice of any busy physician or obstetrician. It is not the purpose of this paper to discuss the accidents of intra-uterine life in connection with what we have had to say about the effect of alcohol on the cells of the embryo, which perhaps might be done with great profit; but I will, however, add that these accidents do not and can not explain the condition of weak and vicious-minded children.

A General View.—After extreme excitement there is a stage of collapse in which the forces of Nature seem to be exhausted; the great emunctories are all inactive; the secretions are dried up; the eyes, nose, lips, mouth, and, in fact, the whole man seems “dry,” and this is really the case. Water has to be supplied in large quantities to the parched stomach, and, for that matter, the whole *primæ* and *secundæ viæ* must be abundantly supplied before the secretions are even in a tolerable condition. This symptomatic state is the result of the exosmosis of water from every part of the body. The cell contents of the neuron is in a degenerate state in the whole nervous system. There is not an organ in the body performing its function physiologically. After the excitement and subsequent collapse have been repeated a certain number of times, varying somewhat with the circumstances and the individual constitution, there follows a melancholia, with its long train of vicious and morbid manifestations. The various manias, tremors, hallucinations, and mental aberrations, psychical and physical, are but symptoms of that climax of degeneration, *dementia*, into which the man gradually descends, where reason is dethroned and understanding is set at naught. These are the cases referred to by an eminent author, “Where reason revisits the mind only during incipient intoxication.”

A NOTE IN REGARD TO VOMITING IMMEDIATELY AFTER MEALS.

By JOHN DUNN, M.D.,
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WITHIN the past year I have seen three cases in which the desire to vomit immediately after meals was one of the prominent symptoms. In the first case:

Mr. S., aged forty-seven years, had for years been unable to sit down to meals without apprehension lest he would be unable to retain his food on his stomach. He had tried many “remedies for dyspepsia.” Within the past year or two this “weakness of the stomach” had increased to such an extent that his wife had asked him why he came to the table at all. Sometimes

he would be able to retain the meal on his stomach until he could get to the spittoon in the next room; sometimes until he could get to the sidewalk in front of his house—when he would be compelled to “throw it every bit up.” This was not the case at every meal, but occurred with increasing frequency, and especially at breakfast.

The second case, Mr. T., aged forty-four years, had suffered from the same trouble for a number of years. With him, however, vomiting immediately after eating occurred less frequently than in the case of Mr. S.

The third case was that of Miss W., aged thirty-three years. Trouble the same. Remedies for dyspepsia had proved useless in all three cases.

The three patients consulted me in regard to spasmodic coughing spells, mentioning only incidentally the facts in regard to the vomiting. In the first case, the spasmodic coughing spells were of great severity and frequency, occurring at all times, chiefly, however, in the mornings. In the second case, the coughing spells occurred almost exclusively in the hour or two after rising. In the case of Miss W., as in the first case, the coughing spells were numerous and so severe as to be exhausting. They occurred at any and all hours—the slightest exertion might bring them on.

In all three cases the patients were total abstainers from alcoholic liquors. In the second and third cases the patients, to all appearances, enjoyed the best of health; in the first case the continuous coughing spells and the repeated ejection of food from the stomach had begun to tell on the patient's strength. In all three cases the patients were engaged in business requiring much active bodily exercise. In the case of Mr. S., examination of the nose and pharynx revealed the following condition of affairs: Nose, deviated septum, touching inferior turbinate left side; turbinated hypertrophy. Pharynx, chronic congestion with varicose condition of superficial veins in mucous membrane. *Relaxed uvula.* In the case of Mr. T.: Deviation of septum; hypertrophied turbinates. Pharynx congested, chronic; *relaxed uvula.* In the case of Miss W.: Nose, normal; pharyngeal mucous membrane slightly congested; *uvula normal.* And in this case it was not until after some trouble that I discovered the cause of the coughing spells. On either side of the median line of the tongue at the base was a swollen, inflamed papilla, against which the uvula, though normal in size, would rub each time the base of the tongue was raised, whether in talking or otherwise. In the first case, removal of the hypertrophied portion of the uvula and treatment of the nose caused a cessation of the desire to vomit after meals, and also of the severe spasmodic coughing spells. The same resulted from the removal of the elongated uvula in Case II. In Case III the papillæ were removed and the symptoms disappeared. It may be further said that in all three of these cases the pharynx was so irritable that attempts at post-rhinoscopic examinations were followed by vomiting; while in one of them, simply touching the uvula—the tongue being held down with the depressor—with a cocaine solution was followed immediately by expulsion of more or less of the contents of the stomach. In all of these cases a prominent symptom was a constant clearing of the throat, with the result that there always remained the sensation of “something in the throat.”

I do not wish to go into all the symptoms and sequences of elongated uvula, among which I might mention double retinal hæmorrhage as the result of a coughing spell brought on by its presence. I wish to call attention to the fact that where we have apparently healthy persons who are unable to retain food in the stomach, and who suffer from

paroxysmal coughing spells, preceded by a desire to clear the throat, the cause of the trouble may lie in an elongated uvula or an irritated papilla on the base of the tongue, so situated that the uvula, whether normal or elongated, can rub against it. Why an elongated uvula should at times cause, immediately after eating, the rejection of food by the stomach requires, I think, the consideration of several points. The elongated uvula acts in a measure as any foreign body placed on the base of the tongue, and its presence results in the production of either the act of swallowing or the act of gagging, or the chest is called into play, and there results an effort at expulsion by clearing the throat.

In some people constant “clearing the throat” seems to be the only unpleasant symptom caused by elongation of the uvula. In other people cough results. In a third class—not to mention others—the presence of the elongated uvula produces from time to time a train of symptoms, in which spasmodic coughing and choking play an important part, severe enough to result in unconsciousness on the part of the sufferer. The presence of an elongated uvula in the proper subject causes, through the repeated efforts by coughing, etc., to get rid of “the something in the throat,” additional congestion in an already more or less congested mucous membrane, and with this additional congestion comes additional sensitiveness of the pharyngeal mucous membrane. And I am inclined to think that in those cases where rejection, immediately after eating, of food by the stomach takes place, its immediate cause is to be sought in a temporary further relaxation of the uvula induced by the further congestion of the pharyngeal mucous membrane accompanying the increased activity in the salivary and mucous glands caused in turn by the act of taking food. The temporary increase in size of the uvula, however small the increase may be, gives the sensation of a foreign body on the base of the tongue, causing gagging and then vomiting.

ELECTRICAL (SO-CALLED) BODY APPLIANCES.

By H. NEWMAN LAWRENCE, M. I. E. E.

Body appliances bearing such names as electric, magnetic, electro-this and magneto-that, and so on through all possible word combinations in which the word “electric” may be included or implied, are plentiful. The word can only be put so prominently forward because it is supposed to carry a definite meaning, and has been found to possess great attraction for the general public. This is an electric age, we are told, and it naturally follows that a large number of persons exist who blindly accept anything that is told them under the word “electric,” and often thoughtlessly, but enthusiastically, adopt and promulgate views, statements, and appliances which outrage every known scientific law bearing upon the subject.

Physicians are for the most part well aware of this; are quite prepared to condemn these appliances on general grounds and to warn their patients against the persons who sell them; but hardly so ready or able to give reasons for their condemnation, and to show *why* these things are of no use. Unless a physician can give good reason for his

condemnation of electric body appliances the fact that he does so condemn them is very apt to be taken as evidence of professional jealousy and narrow-mindedness; and his reputation and connection suffer in consequence.

It may therefore be well to here consider briefly the conditions under which these appliances are supposed to work, and to see how some recent scientific investigations assist us to form definite opinions thereon.

First, it may be said that a very large proportion of these so-called electric appliances are so badly constructed or so marvelously connected that they can not by any possible chance or mischance produce electric currents. Some bear their own condemnation upon their faces, for they are announced as *never wearing out* and *never requiring renewal*.

The only way in which an electric appliance can benefit the body electrically is by *producing electrical energy capable of doing work* upon the body, in the same way that an electric-bell outfit must produce electrical energy capable of doing work upon the bell—*i. e.*, make it ring. There must be a source of energy in the apparatus, and that source requires to be renewed from time to time as the energy produced by it becomes exhausted. In other words, we must have an electric battery, and the electric battery which will never wear out nor run down, as it is called, has yet to be discovered. Science says clearly and definitely that energy can not be created; it may be transformed, changed in character—as from chemical to electrical in the galvanic battery—but it can not be obtained or created from nothing. Any electric appliance, therefore, which professes to *never need electrical renewal* is a *fraud*.

Let us take an illustration from the typical electro-magnetic appliance. We have one or two or more strips of magnetized steel sewn into garments or bands, and we are told that the presence of these magnets causes electrical currents to be set up in the body. Now, while it is quite true that electric currents may be produced in a conductor which is in proximity to a magnet, it is also true that in order to do this one of the two *must be moved* relatively to the other. Either the magnet must be moved relatively to the conductor or the conductor be moved relatively to the magnet. Without such motion no current can be set up in the conductor. Were it otherwise there would be no need to employ large steam engines, or water motors, or to seek the power of Niagara Falls to drive dynamos for the production of large currents for electric light and power purposes. All that would be necessary would be to place magnets near the conducting wires and then to draw off all the electrical energy required. The absurdity of such an idea is apparent to every one, and yet when it is put forward in connection with body appliances many are willing to accept it without question or thought. The body, which is here supposed to be the conductor, when it moves carries the magnet or magnets with it, and there is no relative motion of either one to the other. There is no energy expended in the appliance, and consequently no possibility of any electric influence upon the body. It would be just as reasonable to place a hammer and a nail together and expect the latter to be driven home without any movement of the former—*i. e.*, without any expenditure of energy.

While on the subject of electro-magnetism it may be well to refer to the fact that magnetism alone has been said to influence the body. Against this assumption (in favor of which not one iota of physiological proof has ever been offered) we have the carefully carried out experiments of Kennelly and Peterson,* who, throughout a long series of tests, found not the slightest evidence of physiological action, even when their subjects were placed in very strong magnetic fields. Further, the startling claims of Dr. Luys, in Paris, as to the curative influence of magnets, were shown by Dr. Hart † to be based upon psychological effects alone, equally good results being obtained from dummy magnets of wood, etc. In fact, the *suggestion* was everything and the *fact* nothing.

Other appliances and devices are to be found which differ from the above only in the point that they do not claim magnetic action. They profess in some other way to do electrical work without any provision for the production of electrical energy, or they are said to act in some hitherto unknown manner, which even their venders do not attempt to explain, but lead the public to suppose the action (*sic*) to be electric because they use the word electric or electro as a title. An apparatus of this latter type has recently had a large sale both in America and in England. Its venders have never (so far as I know, and I have questioned them myself) attempted to explain the action claimed for it. Nor can they, for the whole idea is an outrage upon the well-known and oft-proved laws of physics and physiology. Yet this thing is sold freely at more than a hundred times the cost of its materials, and some people who claim to be apostles of light and leading do not hesitate to openly praise and recommend it.

I will pass on to those devices which are, perhaps, even more difficult to deal with because there is a germ of truth in them. I mean those appliances which are capable of producing electrical manifestations under certain conditions. Now, what are the conditions under which electricity may influence the body—*i. e.*, do work upon it? Physiologists tell us that the properties of galvanic or continuous electric currents which can influence the body structures are the electrolytic, the thermal, and the cataphoric—electrolytic, by means of which the fluids of the body are decomposed or broken up into their constituent parts; thermal, by means of which the temperature is raised either locally or generally; and cataphoric, by means of which substances in solution are passed without chemical change from one part of the circuit to another. To produce these effects we must have a current which *can pass* through the body or that portion of it which it is intended to influence. The body offers considerable resistance to the flow of an electric current, and consequently any current must possess a proportionate amount of electric pressure, or electro-motive force, as it is called, before it can overcome that resistance, pass into, and do work upon the body. The state of affairs is somewhat similar to that under which a bullet, when simply pressed or thrown against a door, fails to pass

* *N. Y. Med. Jour.*, Dec. 31, 1892.

† *Popular Science Monthly*.

through it, but when fired from a pistol, by reason of its velocity or pressure, not only passes through but is capable of doing work on the other side. Going a step further, we may point out that supposing the door to be very thick or have iron sheeting over it, an ordinary pistol would fail to pierce it, but that a bullet from a more powerful gun would easily succeed. For electrical purposes the body may be said to be protected by a semiproof sheeting (the skin), which can only be penetrated by currents possessing considerable pressure on account of the resistance it offers. It would occupy too much time and space to go fully into the consideration of the resistance of the human body. Many authorities have found the value of this resistance under various conditions, but until quite recently no measurements taken *under belt conditions* had been recorded. Those who have never tried such measurements can not fail to be astonished at the high resistance of the body under these circumstances. "A short time ago I measured it on several people, using for the purpose a belt which had just been purchased at one of the large London establishments for the sale of such commodities. The average resistance was 800,000 ohms. As this particular belt had rather small discs, I will assume that the figure may be less with others whose contact discs are larger or differently arranged. Let us be charitable and call it a half—i. e., 400,000 ohms. . . . To pass even the tenth part of one milliampère through such resistance requires (by Ohm's law) forty volts, and this is at least forty times more than the best of such belts is capable of."* This view of the resistance of the body under belt conditions has been also proved by Dr. W. S. Hedley,† and by expert evidence given at the famous Harness belt trials which occupied the English law courts at intervals during the autumn of 1892 and spring of 1893.‡

Such being the resistance, let us see how we arrive at the conclusion that forty volts is forty times more than such belts are capable of producing. Every belt which depends upon the moisture of the body for its action can not produce a higher electro-motive force—electric pressure—than that of one couple of the elements of which it is composed, because all the elements dip into the same electrolyte (the body moisture), and can not therefore be connected in series. There may be many elements, but the fluid of the body can not be separated off into cells. It is all in one containing vessel, so to speak, and the only effect of increasing the number of the couples is to practically increase the size of the plates of *similar* metal. As electro-motive force depends only upon the electrical *difference* between the metals used in the same exciting fluid or electrolyte, it follows that the total electro-motive force of these couples, be they few or many, is only that of one couple. The couples used in these belts are nearly always copper and zinc, and their maximum electro-motive force in the presence of such fluids as body moisture is *less than one volt*.* Other couples may give a slightly

different result, but no combination has yet been found which, with such an excitant, will give over one volt.

So far, then, we have an arrangement which may give one volt and which has to act upon a resistance of four hundred thousand ohms. This, by Ohm's law, will give a possible current through the body of *one fourth of a thousandth part* of one milliampère—an infinitesimal fraction of the smallest current (one milliampère) recognized by electro-therapists; too small for the conception of any but the theoretical mathematician, and less than may be obtained by dipping a needle and a pin into a spot of ink.*

The belt venders are now trying somewhat to trim their sails to the wind and declare that their devices are only intended to generate small currents, and that their infinitesimal possibilities may prove useful to the body if the *time* factor is taken into account; that a small electrical influence applied for a long time is equivalent to a greater influence applied for a proportionately shorter time. Imagine having to wear a belt four thousand hours (nearly six months) before the effect of even one milliampère-hour could be obtained!

Recent discoveries have, however, given us (if possible) a stronger and simpler answer to these absurd claims. We have seen that one of the most important properties of the electric current which influences the body is the electrolytic. To produce electrolysis in any fluid requires at least a minimum electro-motive force. This minimum varies in different fluids and semifluids, and has recently been determined both by calculation and experiment to be for chloride of sodium—calculated, 2.02 volts; determined by experiment, 2.10 volts:† let us say in round figures two volts.

We have proved that belts which depend upon the moisture of the body can not generate more than one volt. For electrolytic purposes various authorities agree that the fluids of the body are equivalent to a two-per-cent. solution of sodium chloride.‡ Sodium chloride, as we have just seen, requires at least two volts to electrolyze it. Therefore it is impossible for these belts to produce electrolysis in the human body.

Thus, both as regards electro-motive force and quantity of current, these belts stand condemned as useless. Of course, many testimonials vouching for the curative value of these and other body appliances equally impossible are to be met with, and some at least of them are genuine expressions of the belief of those who wrote them. Any one who observes human nature knows something of the enormous influence of mind over body; it is almost impossible to set a limit to it; but because mind influence occasionally brings about some startling cure, under cover of the use of some appliance which is absolutely incapable of producing any physical or physiological effect upon the body, it by no means follows that the appliance ought, therefore, to be called curative. It is simply an evidence of the psychological influence and of the same nature of things as the

* Article by the author in *Electrical Review*, London, 1892.

† *Provincial Medical Journal*.

‡ *Electrical Review*.

* *Ibid.*

* *Electrical Review*.

† *Comptes rendus*, vol. cxviii, No. 4, p. 189. Article by C. Nourisson.

‡ Beard and Rockwell, W. J. Morton.

monastic miracles of the middle ages. Psychology is quite outside our present investigation and it affects all other remedies and supposed remedies as well as electricity. My point is that because people sometimes blindly believe what they are told, it is not therefore right to willfully tell them lies, and it is a very low kind of fraud which squeezes one hundred times the value of an appliance out of the public simply and solely because the appliance is called by a name to which it has not the slightest right.

I wish to point out that the strictures upon belts made above mainly refer to those which depend upon the moisture of the body for their action—*i. e.*, are not in any way complete batteries apart from the body. Nearly all the so-called electric belts are of this type. I have, however, seen in England (it may exist over here, but I have not yet met it) one body appliance which is a genuine battery and will act as such apart from the body, having all the essential parts self-contained. It will electrolyze sodium chloride and it will pass a perceptible current through the body. Therefore it is a genuine electrical appliance, and is exempt from the above strictures, though for various other reasons its value as a therapeutic agent is open to much question.

34 WEST NINETEENTH STREET, June 12, 1894.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending September 18, 1894:

DISEASES.	Week ending Sept. 11.		Week ending Sept. 18.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	25	17	24	6
Scarlet fever.....	17	7	28	1
Cerebro-spinal meningitis....	0	1	0	0
Measles.....	16	1	21	5
Diphtheria.....	124	37	105	24
Small-pox.....	13	1	8	2
Tuberculosis.....	71	121	81	110

The American Medical Publishers' Association.—The first annual meeting occurred at Hot Springs, Va., on August 13th and 14th. After the transaction of the usual routine business, the president, Dr. Landon B. Edwards, read a paper on Advertising and Advertising Agencies. Upon motion, it was decided that all annual meetings hereafter should be held just prior to the sessions of the American Medical Association, the next meeting being set for Monday, June 5, 1895, at 9 A. M., in the Utah House, Baltimore.

The Masonic Hospital, Chicago.—Dr. G. Frank Lydston will give free lectures on regional surgery every Monday evening, at eight o'clock, beginning on October 1st. The subjects are The Surgery of the Prostate, Bladder, and Kidneys; Chronic Ulceration of the Female Genitalia; Appendicitis; The Surgery of the Rectum; and Urethral Stricture. The lectures will be illustrated with charts and drawings.

The New York State Association of Railway Surgeons will hold its annual meeting in New York, in the Academy of Medicine's building, on Thursday, November 15th.

THE NEW YORK MEDICAL JOURNAL, *A Weekly Review of Medicine.*

Published by
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Edited by
FRANK P. FOSTER, M. D.

NEW YORK, SATURDAY, SEPTEMBER 22, 1894.

GREEN MILK.

IN the *Lancet* for September 8th Mr. Griffiths, of Cardiff, reports a case that he thinks is unique, one of green coloration of the milk not due to the presence of bile-pigment. Unfortunately, a bacteriological examination was not made. The patient was advanced six months or more in pregnancy when she presented herself to Mr. Griffiths, who was able to squeeze from the breasts about a drachm of liquid having all the appearance of milk, save that it was greenish. The woman stated that she had squeezed out the same sort of secretion more than a month before, on the occasion of her feeling some irritation and itching of the breasts. Under the microscope, the expressed liquid showed the general characters of milk. The patient had no jaundice, and the color of the urine and fæces was not such as to indicate biliary trouble; moreover, the usual tests for bile-pigment, applied to the milk, failed to reveal its presence. Professor Halliburton examined some of the milk, which had been evaporated to dryness. His report showed that this dried milk was in the form of lumps which were insoluble in water, alcohol, chloroform, or ether. Nitric acid changed their color to yellow, and this was deepened into orange by the addition of ammonia. This was taken to be a xanthoproteic reaction. There was no play of colors like that obtained from bile-pigment. The hæmin test did not show the presence of any iron-containing derivative of blood-pigment. The existence of fatty pigments was excluded by the failure of iodine and sulphuric acid to bring out any distinct blue or violet color, and the absence of indigo was inferred from the fact that when the milk was boiled with hydrochloric acid and a drop of nitric acid, and then shaken with chloroform, no pigment was dissolved out by the chloroform. The color was thought to be due to an aromatic body produced by bacteria. The patient straightway disappeared from observation, so that another specimen of the green milk could not be obtained; in about two months, when she was next seen by Mr. Griffiths, the milk had ceased to show the green color.

PYOMETRÁ IN A CAT.

AN interesting bit of comparative pathology is recorded by T. S. Cullen, M. B., assistant resident gynæcologist of the Johns Hopkins Hospital, of Baltimore, in the September number of the *American Veterinary Review*, and his account is accompanied by an excellent reproduction of a photograph showing the distended left cornu of the uterus, together with the anterior segment of the vagina. The cat's history, as given by its owner at the time when he brought it to the pathological labo-

ratory of the Johns Hopkins University, was that its abdomen had begun to enlarge six years before, and the swelling had gradually increased. During the six years the cat had had no kittens, but its general health had seemed to remain good until within a few days of its death, when it had declined food and slowly died. Locomotion, however, had been difficult. A week before its death the girth at the umbilicus was seventy centimetres, and distinct fluctuation could be elicited.

The necropsy was conducted by Professor Welch. Although the photograph shows only one uterine cornu, both the cornua were found enormously dilated throughout their entire length, "resembling sausages in their contour." Each cornu presented three constrictions and was forty-five centimetres in length, with a maximum diameter of twenty-five centimetres. They contained thin, dirty, grayish-white pus, free from odor, in which there were many large cells filled with fat-droplets, multinuclear leucocytes, detritus, and myriads of short bacilli resembling in form the colon bacillus. Both oviducts and ovaries appeared normal. The vagina was greatly constricted just within its orifice, so as not to admit the finest probe, and it is suggested that this stricture may have been the cause of the uterine disease. It is not stated whether or not the cat had ever had kittens.

MINOR PARAGRAPHS.

MEDICAL PUBLISHERS AND MEDICAL JOURNALS.

A FIRM of medical book publishers having establishments in two German cities has lately sent us one of its publications by express—at least, the express company has notified us to that effect, and informed us in addition that certain charges were due on the book. Of course, we shall pay no attention to the notification; our only object in mentioning the matter is to deter our American contemporaries, so far as in us lies, from allowing themselves to be made the victims of such assurance, for we do not imagine that this journal alone has been singled out for its display. Nothing can be more self-evident than that publishers send copies of their books to the journals for their own purposes, and in no wise as an act of generosity; let them, therefore, pay the charges for transportation themselves.

AN INCIDENT THAT MAY HAPPEN FROM THE SUBCUTANEOUS INJECTION OF ETHER.

THE *Deutsche Medizinal-Zeitung* for September 6th summarizes from a Russian journal an account, by Dr. M. P. Michajlow, of a case of acute cardiac weakness in which a hypodermic injection of ether, administered to a patient with typhus, gave rise to the formation of a large swelling filled with gas at the site of the injection. This is attributed to the vaporization of the ether after its injection, and it is said that it may happen even in persons whose temperature is normal, but that then the formation of the bleb is so gradual that it escapes notice. In the instance related the patient and the other occupants of the ward were not a little alarmed at this sudden appearance of the swelling.

ITEMS, ETC.

The Late Professor Michel Peter.—It is not often nowadays that the Paris Faculty of Medicine officially takes part in religious observances. It is therefore interesting to note that

when a week or two ago a mass for the repose of the soul of the late Professor Peter was celebrated on the anniversary of his death, the Faculty of Medicine was present in great force. Conspicuous in the devout assemblage were Professor Brouardel, Dean of the Faculty, Professors Jaccoud, Dieulafoy, Guyon, and Cornil, and many other medical stars of the first magnitude.—*British Medical Journal*.

Society Meetings for the Coming Week:

MONDAY, September 24th: Medical Society of the County of New York; Boston Society for Medical Improvement; Lawrence, Mass., Medical Club (private); Cambridge, Mass., Society for Medical Improvement; Baltimore Medical Association.

TUESDAY, September 25th: American Public Health Association (first day—Montreal); New York Dermatological Society (private); New York Academy of Medicine (Section in Laryngology and Rhinology); Buffalo Obstetrical Society; Medical Society of the County of Lewis (quarterly), N. Y.; Boston Society of Medical Sciences.

WEDNESDAY, September 26th: American Public Health Association (second day); New York Pathological Society; American Microscopical Society of the City of New York; Metropolitan Medical Society (private), New York; Medical Society of the County of Albany, N. Y.; Auburn, N. Y., City Medical Association; Berkshire, Mass., District Medical Society (Pittsfield); Philadelphia County Medical Society.

THURSDAY, September 27th: American Public Health Association (third day); New York Academy of Medicine (Section in Obstetrics and Gynecology); New York Orthopaedic Society; Brooklyn Pathological Society; Roxbury, Mass., Society for Medical Improvement (private); Pathological Society of Philadelphia (conversational); New London, Conn., County Medical Society (extra—New London).

FRIDAY, September 28th: American Public Health Association (fourth day); Yorkville Medical Association (private), New York; New York Society of German Physicians (private); New York Clinical Society (private); Philadelphia Clinical Society; Philadelphia Laryngological Society.

Proceedings of Societies.

AMERICAN GYNÆCOLOGICAL SOCIETY.

Nineteenth Annual Meeting, held in Washington on Tuesday, Wednesday, and Thursday, May 29, 30, and 31, 1894.

The President, Dr. WILLIAM T. LUSK, of New York, in the Chair.

(Concluded from page 232.)

The Influence of Laceration of the Perinæum on the Uterus, and the Operation for its Repair.—Dr. W. GILL WYLIE, of New York, read a paper with this title. He said that there was no doubt there was much yet to learn about the results of laceration of the perinæum and the best way to repair it. He had been making extended studies in this direction, and believed that he had arrived at the best method of operating on old lacerations where there was a proctocoele present. It was generally supposed that in all ruptures into the rectum there must necessarily be displacement of the uterus; but this was a mistake. If the rupture was in the median line, even if through the sphincter, there was no displacement of the uterus. If the levator ani muscle was separated from both sides, then the continued straining at stool would eventually bring down

the uterus. The anatomical facts in regard to the various axes—abdominal, pelvic, rectal, and anal—were not properly understood; if they were, it would be plain why displacements occurred in certain forms of lacerations and not in others. The function of the perinæum was to sustain the relation of the rectum and anus, and not to keep the uterus in position. Where the perinæum was destroyed, the continued forcing downward of the contents of the rectum pushed the intestine forward, there being no resistance, and formed the proctoceles. To restore this condition it was necessary to reunite the ends of the muscle and pull the sulci on either side up over the proctoceles, so as to strengthen the wall and thereby prevent the pouching. The straining at stool was what caused the retroversion and prolapse; first the uterus became wedged in between the uterosacral ligaments, and, as it was not able to free itself, further straining caused further extrusion of the uterus. As to the form of operation for the relief of this condition, the speaker did a modified form of Tait's operation, which consisted of a narrowing of the posterior wall of the vagina by a picking up of certain tissues. The levator and fascia fibers in the depressed sulci on each side must be denuded and drawn up. One must cut down until he came to dense white tissue, for in many cases there would be no red muscular fibers, because the muscles were atrophied. These structures must then be drawn up firmly with silver-wire sutures, the last three or four being entirely within the vagina. The sutures were left in for two or three weeks.

Dr. C. P. NOBLE, of Philadelphia, had found that when tears went through the rectum they were invariably in the median line, and this was perhaps the reason why the uterus did not come down. He had also found that in incomplete lacerations, where the fibers of the levator ani had separated on both sides in an uneven manner, there was usually displacement, but he did not attribute the displacement so much to straining at stool as to occupation. He was always able to find the fibers of the muscle and suture them, and he did not think that the support of the pelvic tissues depended upon a little white fibrous tissue, but upon the great levator ani muscle.

Dr. A. J. C. SKENE, of Brooklyn, agreed with Dr. Wylie that complete lacerations did not cause prolapse. If the pelvic floor was uninjured, but the structures above were torn, there was a sagging of the tissue with a dragging which would bring down the uterus. Another reason why there was no prolapse in median-line laceration was that compensation took place in the levator ani muscle whereby the pelvic floor would be drawn up. Many, no doubt, had seen complete laceration where the perinæum would be drawn tightly up under the pubes. He did not recognize the condition of so-called proctoceles; what he found in these cases was a mass of hæmorrhoidal veins, and the operation best adapted to its correction was that recommended by Emmet. He had seen many cases in which it was impossible to find any muscular tissue to reunite.

Dr. WYLIE could not see how it would be possible, if the perinæum was torn up on the sides, for an operation done in the median line to do any good; he operated differently in different cases.

The Ultimate Results of the Treatment of Retrodisplacements by Pessaries.—Dr. FRANCIS DAVENPORT, of Boston, selected this as a subject for his remarks. There was no doubt that there were certain objections to pessaries, but were they not exaggerated? Most persons could wear a pessary without discomfort, and all that was required was a certain amount of skill in the fitting. Many objected to them on the ground that they required frequent attention from the physician; again, that they were a foreign body, and necessarily unpleasant; and also that they did not cure and would have to be worn for the rest of the patient's life. He gave the

history of fifty selected cases of retroversion that had been treated by pessary. Ten were completely cured and the uterus was in a normal position. Nine were benefited and symptomatically cured. Thirty-one patients now went without the pessary; their uteri were in normal position, but they still had some symptoms. This treatment gave twenty per cent. of absolute cures. Of the ten cured patients seven wore the pessary a year and a half. The shorter time the displacement had lasted the quicker the cure. He thought that these results were worth trying for, and where many patients objected to operation a fair trial of several months or a year should be given to the pessary.

In summarizing Dr. Davenport said that in cases of uncomplicated retroversion or retroflexion of the uterus the choice lay between shortening the round ligaments and the wearing of a pessary. That a cure, either anatomical or symptomatic, could be assured. Where a cure was effected it took place usually in about a year. A large proportion of those not cured could wear a pessary and did not want an operation. The operation for shortening the round ligaments should be limited to those who could not wear a pessary or in whom vaginal treatment was inappropriate, and as a supplementary proceeding to other operations.

Dr. E. W. CUSHING thought that the usual statistics given on this subject were valueless. He thought that it was too often that the symptoms were treated and not the cause. He was satisfied that few cases required Alexander's operation. If, after fair trial of every form of treatment, including pessaries, the uterus would not remain in position and the symptoms were not cured, then the abdomen should be opened and the trouble looked for and corrected.

Dr. CLEMENT CLEAVELAND, of New York, said that he believed in the use of the pessary and in the Alexander operation, and thought that there was a field for each. The pessary was chiefly useful in retrodisplacements. A most beneficent operation was the Alexander, and he believed that it had come to stay. It had always proved a success in the speaker's hands, and he had done the operation over forty times with most gratifying results.

Dr. G. M. EDEBOHLS, of New York, said that the discussion was as to the relative value of the Alexander operation and pessaries. He maintained that the only cases where pessaries could be used was where there were no adhesions and where the tubes and ovaries were in a normal condition. In the other class of cases, which were by far the largest, it was his plan to shorten the round ligaments. He had operated in this manner seventy-five or eighty times and in not one had the uterus returned to retroversion. There was always an anatomical cure, but not always a symptomatic one.

Inflammation of the Ureters from a Medical Standpoint.

—Dr. MATTHEW D. MANN, of Buffalo, read a paper on this subject. From a very careful observation over a long period of a great number of cases the author was inclined to believe that inflammation of the ureters was much more common than was generally supposed. Some of the causes were pelvic cellulitis, suppuration in and around the pelvic organs, gonorrhœa, and labor. If after labor the patient complained of pain, and pressure over the ureters elicited expressions of tenderness, it would always be well to examine the urine. If its reaction was acid and there was pus present, ureteritis should be suspected. Injury to the ureters occurred most usually when the head had pushed down the anterior lip and dragged down the bladder behind the pubes, also in instrumental deliveries. Patients were often treated for irritation of the bladder when the true condition had never been suspected. Anything which would cause obstruction of the flow of urine and backing up might bring about the disease. Gonorrhœal cystitis might extend to the ureters.

He thought that in many cases where pain and discomfort had persisted after removal of purulent tubes they were due to unrecognized inflammation of the ureters. He did not think that the ureteritis was so much due to continuity as to a common cause. In antelexion, where patients complained of vesical irritation, it was not so much due to the displacement as to the dragging on the ureters; an examination of the urine would prove this. If the digestion was disturbed the urine was abnormal, and, this secretion passing through the ureters, they would be irritated. If inflammatory symptoms were set up, we should look for the exciting cause in the genital organs. The first symptom noticed in these conditions would be a slight catarrhal condition in the urine. If the ureters were palpated they would be found thickened and sacculated. The bladder was not generally affected, but there might be cystitis. Pain was usually on the left side. There might be complications in the pelvic organs. The most common symptom was frequent micturition. The pain was burning and cutting and was much aggravated about the menstrual period. One of the most curious symptoms was a distaste for water. There would be bilious attacks and great depression of spirits. Sometimes the attacks would be intermittent. Pain would at times be so severe that the patients would be unable to walk. The diagnosis was to be made first by an examination of the urine and by palpation of the ureters. The urine would be scanty and it would contain pus and blood cells and it would be very acid in reaction. The mucus would be very slightly increased. The treatment was in three forms—constitutional, local, and surgical. The first consisted of hot baths, dry hot air, and the free use of water and of alkalies; secondly, medicines to increase the secretion of urine and antiseptics that might be carried through the urine down the ureters; thirdly, the making of a vesico-vaginal fistula, which sometimes gave marked relief.

Dr. J. M. BALDY, of Philadelphia, thought that there was not such a field of practical application as we should be led to suppose from Dr. Mann's paper. It might be possible that there were many mistaken diagnoses, but for his part he thought the disease rare. Of course, when the disease was discovered, he thought the only thing to do was to give alkalies. He did not see how the sweating of patients was going to benefit them, as that process concentrated the urine, the very condition that was to be avoided.

Dr. A. P. DUDLEY, of New York, thought that there was one class of cases where a mistake in diagnosis might be made, and that was between appendicitis and ureteritis. He believed that the disease did begin in the ureter itself. Pressure upon the ureter from the various forms of disease of the appendages might cause obstruction of its caliber and cause disease higher up in the kidneys. He had knowledge of such a case.

Dr. FORD thought that the disease often occurred in young women where there was no particular disease of the appendages. He reported a case where he had operated for stone in the bladder and where no stone was present. The patient died and at the autopsy it was found that there was a dilated ureter. He emphasized Dr. Mann's statement that the causes were mainly dietetic and brought about lithæmic conditions which caused irritation of the ureters. He had good results from high enemata of water, passing three pints and as much as two quarts; it acted as a diuretic. Everything should be done to secure perfect oxidation.

Symphysiotomy versus the Induction of Premature Labor.—Dr. CHARLES P. NOBLE, of Philadelphia, read a paper on this subject. He gave an historical review and statistics of induced labor and the recent results with symphysiotomy, showing the slight inherent risk to the mother by the latter operation. He thought that in symphysiotomy a great contri-

bution had been given to modern obstetrics, that it was a life-saving method for both mother and child. In contracted pelves it was better practice to do this operation early than to induce labor and perhaps lose the child. The mortality of children born from four to six weeks before term was comparatively slight and no mothers were lost. These results could not be obtained with premature induced labor. He preferred in the flat pelves to let the patient go to near term and then do a high forceps delivery. He did not favor version.

Dr. MURRAY, of New York, looked upon the induction of premature labor and symphysiotomy as elective operations. He thought that the induction method in general practice was far from being absolutely safe. If both operations were to be done by skillful persons they would offer much each in its own way. The advantage in symphysiotomy was that the patient could be allowed to go to full term.

Dr. CHARLES JEWETT, of Brooklyn, did not think that we yet knew the possibilities of the operation, but that as far as he could judge if done before exhaustion of the mother it ought to be perfectly safe.

Dr. GEORGE J. ENGELMANN, of St. Louis, thought that symphysiotomy was pre-eminently a much more satisfactory operation than any other that had yet been devised for saving mother and child. Given a suitable class of cases, the results ought to be perfect. He thought nothing better could be offered, where solid tumors impeded the descent of the child, toward making a larger passage through the natural channel.

Dr. McLEAN had been struck with the value of Dr. Noble's remarks, and he agreed with him in everything with the exception of his objections to version. He did not think it at all necessary with this operation to lose children with either version or the forceps.

Dr. NOBLE believed that version was a frequent cause of death to the children, but did not affect the mortality of the mothers.

The Influence of Minor Forms of Tubal and Ovarian Disease in the Causation of Sterility.—A paper on this subject by Dr. THOMAS A. ASHBY, of Baltimore, was read by title.

New Inventions, etc.

AN OPERATING TABLE.

By JOHN B. HARVIE, M. D.,

ATTENDING SURGEON TO THE TROY HOSPITAL, TROY, N. Y.

THE accompanying description and photographs will illustrate an operating table which I had made for my own use at the Troy Hospital.

The entire length of the top when extended is six feet and a half, and it is divided into three parts—that portion at the head, which we shall specify as *a*, being half a foot in length, the body portion (*b*) four feet, and the foot drop (*c*) two feet. The width is twenty-two inches.

A is attached to *b* by means of hinges and held in position by a double arm and clamp in such a way that it may be dropped entirely or may be brought to the horizontal when extra length is necessary, or may be elevated to a right angle (above the horizontal).

The body portion (*b*) is four feet in length, and fastened at one end to the belt of the table by means of three strong hinges.

The foot drop *c* is fastened to *b* by means of buried hinges

and a circular joint. The table may be adapted to any position ordinarily required in surgery.

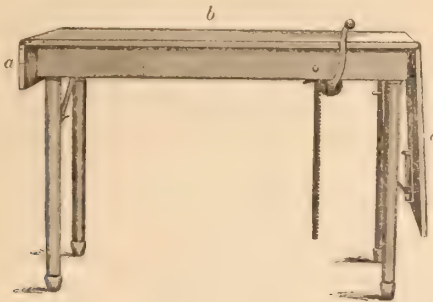


FIG. 1.

Fig. 1 represents an ordinary table four feet in length, with a head drop (a) of six inches, which may be elevated to the horizontal, increasing the length to four feet and a half, and a foot drop (c) of two feet, which may also be elevated to the horizontal, making the total length of the top six feet and a half.

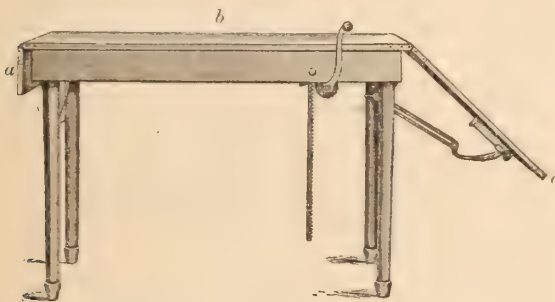


FIG. 2.

Fig. 2 shows the foot drop (c) elevated to an angle of forty-five degrees.

Fig. 3 illustrates the head (a) and foot (c) pieces in a vertical position with an elevation of the lower end of the body por-

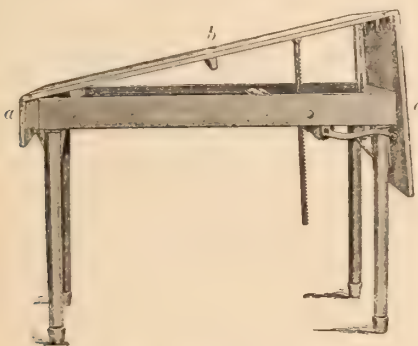


FIG. 3.

tion, (b) making a desirable position when elevation of the hips is necessary.

Fig. 4 shows the position of Trendelenburg by means of a rack and gear, the rack being twenty-four inches long and fastened on an oscillating center on the lower surface of b, ten inches from the lower end. The gear, which is two inches and three quarters in diameter, is attached to a shaft operated by a crank. Three revolutions elevate the extreme lower part of b about twenty-seven inches, and it is held in place at any height by a dog in a ratchet gear. The foot drop (c) will follow the body portion (b) to Trendelenburg's position from the illustration shown in Fig. 2 or Fig. 5. This is accomplished by means of an arm which works automatically and insures perfect stability.

All these positions may be accomplished rapidly and without

in any way disturbing or changing the position of the patient. Trendelenburg's position was secured with perfect ease when a

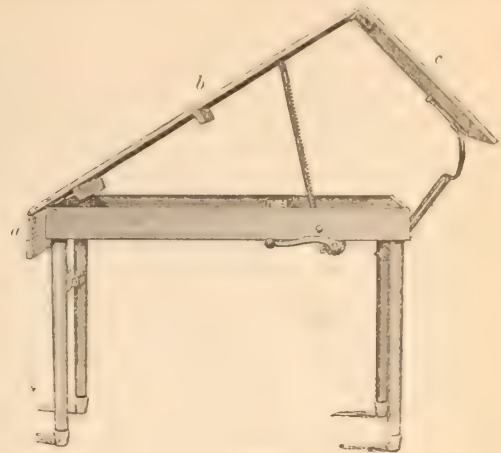


FIG. 4.

patient weighing two hundred and fifty-five pounds was on the table.

Fig. 5 shows a table six feet and a half long.

The advantages alleged for this table are its adaptability to general operative work, and at the same time possessing the

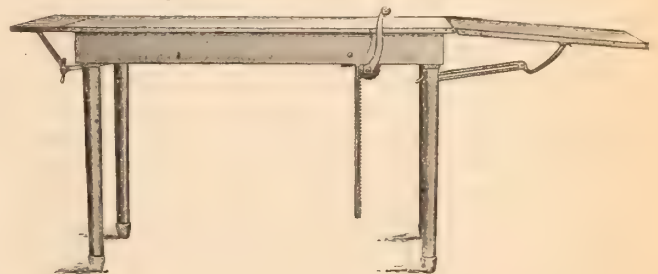


FIG. 5.

necessary facilities for special lines of work. We have a table in Fig. 1 which may be used in perineal or rectal work. If a hip elevation is desired, as shown in Fig. 3, it may be obtained in a moment.

Fig. 2 furnishes us a table which is suited to a large number of abdominal cases, and if Trendelenburg's position is desired at any time during the operation we may secure it without interfering in any way with the patient. The table is free from complications and can not get out of order, is perfectly stable and durable. Every part of it can be reached with the greatest facility, so that with little trouble it may be kept perfectly aseptic. It is also inexpensive.

Miscellany.

The Influence of Certain Natural Agents on the Virulence of the Tubercle Bacillus.—In No. 336 of the *Proceedings of the Royal Society* there is an abstract of a paper on this subject by Dr. Arthur Ransome and Mr. Sheridan Delépine. Dr. Ransome said that the tendency of former researches had been to prove that fresh air and light and a dry and sandy sub-soil had a distinct influence in arresting the virulence of the tubercle bacillus, that darkness somewhat interfered with this disinfectant action, but that mere exposure to light, in other-

wise bad sanitary conditions, did not destroy the virus. The following results of similar experiments by the authors were given: 1. A rabbit had been inoculated in the peritonæum with fresh sputum, and after fifty-five days well-marked tuberculosis had appeared. 2. After the sputum had been exposed to light and air for forty-five days, in June and July, the rabbit was inoculated, but had shown no tuberculosis after eighty-six days. 3. The sputum had been exposed in an air-shaft at dusk during the same season, and slight tuberculosis had shown itself after eighty-six days. 4. The same sputum had been exposed at the same time in air and light, and then inoculated under the skin of a guinea-pig. No distinct tubercle had shown itself in eighty days. 5. The same methods had been employed, only at dusk, and advanced tuberculosis had manifested itself in eighty days. 6. Another sputum had been exposed in April for sixteen days to little or no air, in darkness, and well-marked tuberculosis had appeared after forty-two days. The authors then endeavored to determine how short a period of exposure to light and air would be sufficient to destroy the poisonous action of the microbe, and guinea-pigs had been selected as the most susceptible animals to test this question.

Pure cultivations of the bacillus had been prepared and had been found to be active by frequent inoculations. Small portions of this material had been spread in a thin layer upon pieces of sterilized paper, and arranged in circles of about two millimetres in diameter, in order to give every opportunity for the action of the elements. They had then been exposed in a glass room, with free access to light and air, for diminishing periods of time—namely, from fourteen to two days respectively. The meteorological observations had shown that the results of the first few days only had been of importance. The control experiments showed that the bacilli used after this date had lost their virulence, and the results of two experiments were doubtful on that account; but another experiment had been made with a very virulent specimen, as had been proved by the inoculation of two guinea-pigs, with paper infected with the same quantity of the same cultivation, and kept the same length of time, but not exposed to sunlight. In both cases advanced tuberculosis had been produced in forty-four days. Only one experiment could be entirely relied upon, and in this case, after four days' exposure to air and twelve hours and a quarter of sunshine, there had been no result from the inoculation.

In the next series of observations it had been determined to allow tuberculous sputum to dry, first, in light and air; second, in air and darkness; third, in a close cupboard. Fresh sputum, rich in bacilli, had been obtained and exposed in watch-glasses. The first specimen had dried in four days, the second in eight days, and the third in nineteen days. The first and second specimens had been closed up as soon as they had become dry and kept until the third specimen had been ready, and then portions of the sputum had been scraped off the glasses and inoculated into guinea-pigs directly after scraping. The results of these experiments had been somewhat anomalous, the speaker said, and he could therefore draw no decided conclusion from this series of experiments.

In another series of observations the sputum had been spread upon paper, and had thus dried more rapidly at the ordinary temperature, about twenty-four hours having been sufficient. It had then been scraped and partly converted into tuberculous dust before being exposed to the same conditions as before. In this way it might be expected to be more readily affected by the elements. An attempt had been made to measure the amount of air as well as light, but only a rough guess could be made as to the quantity of air which had passed over the sputum, for the papers had had to be loosely covered with thin gauze to prevent the dust from being carried away by the wind. Three sets of

experiments had been made, as follows: 1. Papers had been placed in the dark, close cupboard. 2. Papers had been placed in the air-shaft of a draught-closet in a dim light, pure air only passing through it. 3. Papers had been exposed to light and air for three days in February. The rate of air current had been about a thousand feet an hour, and the sunshine recorded had been an hour. The amount of tuberculous dust was so small that portions of the paper had been inserted together with it under the skin. In the first set of experiments sputum which had been kept only one day in a closed, dark cupboard, after drying on paper, had produced well-marked tuberculosis in thirty-one days; sputum kept under the same conditions, but exposed to a little air for thirty-five days, had produced distinct local tuberculosis in twenty-three days. In the second set of experiments sputum which had been kept in the draught-closet for three days in a current of air (about a thousand cubic feet an hour) in darkness, at the ordinary temperature, had given well-marked tuberculosis in thirty-two days. In the third set of experiments sputum which had been exposed to light for three days, with an hour of sunshine, good ventilation, and a maximum temperature of 50° F. (minimum, 38°), had produced no tuberculosis after forty-six days. Other sputum had been exposed to the light for seven days with fifteen hours of sunshine and brisk ventilation. Temperature, maximum 88°, and minimum 29°. No tuberculosis had appeared after twenty-two days. Again sputum had been exposed to the light for two days after having been kept dry for four weeks. There had not been much exposure to sunshine, and ventilation had been slight. Temperature, maximum 60°, and minimum 22°. The same result had been obtained.

These researches, said Dr. Ransome, had an important bearing upon the question of the limits of the infectiveness of tubercle.

It had long been known that the disease was most common in the dirty, badly-ventilated dwellings of the poor. There were few, if any, records of the transmission of the disease in clean, well-lighted, and well-ventilated houses or hospitals, even in those for consumption. Long before Koch's discoveries, and before the disinfection of sputum had been practiced as it was now, the conveyance of the disease under these conditions had been recognized by many to be one of the rarest events.

So far, said the speaker, as the results that had been obtained with sputum extended at present, they showed that finely divided tuberculous matter, such as pure cultures of the bacillus or tuberculous dust, in daylight, and in free currents of air, was rapidly deprived of virulence; that even in the dark, although the action was retarded, fresh air had still some disinfecting influence, and that in the absence of air, or in confined air, the bacillus retained its power for a long period of time.

The Effect of Ether on the Kidney.—In the September number of the *University Medical Magazine* there is an article by Dr. George B. Wood entitled *The Elimination of Ether and its Relation to the Kidney*, a thesis for which the Isaac Ott prize of the University of Pennsylvania for 1894 was awarded. The author gives accounts of seventeen experiments on animals, undertaken for the purpose of ascertaining the precise action of ether, when administered as an anæsthetic, on the kidney, whether healthy or diseased. He thus summarizes the chief conclusions that he has arrived at: 1. It has been proved that ether exists as such in the free state in the blood, but, although it must come in close relation with the kidney, it is not excreted by that organ to any appreciable extent. Nevertheless, it has been demonstrated that in ether anæsthesia the kidney becomes congested and, on microscopical examination, the cells show cloudy swelling. The cells of the convoluted tubules are af-

fects primarily, and the tufts and collecting tubules do not show any change unless the anæsthesia has been prolonged. It is probable that repeated administrations of ether, if kept up long enough, would cause desquamation of the epithelial cells. 2. The local effect of ether upon the kidney already diseased must be very deleterious, for any unhealthy organ will not stand wear and tear like a normal one. In cases where uræmic poisoning was beginning to manifest itself it was shown that there was a liability to sudden death during ether anæsthesia, due to the action of the ether on the already depressed centers of respiration.

The author gives it as his belief that in cases of nephritis surgeons should give ether only with the greatest care, and watch continually for any signs of failure of respiration. An important point, he says, is that the ether should be given very gradually, and when during the anæsthetization it is necessary to use more ether the inhaler should not be put directly on the face at once, but gradually brought close to it while the anæsthetizer watches the patient's breathing carefully.

A Case of Recovery after Threatening Symptoms from Snake-bite.—In a recent number of the *Indian Medical Record* Mr. P. Fitzpatrick, of the British Indian Medical Service, gives a short account of the case of a Hindu woman, about thirty-five years old, who was brought to him with the statement that she had been bitten by a poisonous snake about an hour and a half before. She was semi-conscious and in a state of collapse, her teeth were clinched, froth exuded from her mouth, her arms and legs were rigid, distinct fang punctures were visible on the little toe, and the site of the bite was surrounded by ecchymotic discoloration. Shortly after the woman's arrival a dead snake about eighteen inches long was brought for Mr. Fitzpatrick's inspection. It was of the kind called by the natives *scheetha* or *sourrealla*, which they are said to consider quite as venomous as the cobra. It appears that the woman had been subjected to native treatment, for Mr. Fitzpatrick found it necessary to clear her mouth of *nim* leaves and to remove from the wounded limb the sacred mud, amulets, and charms that had been applied to it. He then applied compression to the femoral artery at the knee and also applied a ligature just above the seat of the bite. He cut into the punctured part freely and encouraged the bleeding. He also rubbed into the cuts a mixture of strong ammonia water and potassium permanganate. Besides this, he gave a hypodermic injection of five minims of the British solution of strychnine at once, and gave two more at intervals of two hours, at the same time using warmth and friction to the extremities. The patient rallied gradually, and the next day she was reported to be as well as ever, having insisted on going home the evening before.

The Treatment of Habitual Constipation.—The *Hospital* for September 1st contains an article on this subject in which the author remarks that the general causes of constipation are such as produce either weakness of the peristaltic movements of the bowels or an unnatural hardness of the intestinal contents. Among the conditions leading to deficient peristaltic action a predominant place must be given to negligent habits acquired by the patient. Neglect of the calls of Nature, hurried, irregular, and often imperfect acts of defæcation, lead to the overloading of the colon and stretching and consequent weakening of its muscular coat. Want of exercise has also an important bearing on the subject. Dietetic errors are chiefly responsible for the production of undue hardness of the fæces, and the habitual ingestion of larger quantities of food than are requisite for the needs of the body tends to induce impaired intestinal action. A very frequent cause is a deficiency in the consumption of water, which is an important constituent. Tea, owing to the tannin

contained in it, has very little value in liquefying the intestinal contents; alcoholic drinks also are deficient in this respect. A diet of which meat forms a large part, or in which farinaceous foods predominate, favors constipation, and bread made of refined flour loses not only much of its nutritive value, but also much of its stimulative power. The habitual use of rich or indigestible food is also a cause of constipation.

The result to be aimed at in the treatment, says the author, is to secure for the patient natural and regular evacuations, and to render him independent of aperients as far as possible. Brisk exercise, preferably on horseback, should be insisted upon, and the abuse of active purgatives must be stopped. A larger proportion of vegetables and a still greater one of wholesome fruit, with less meat, will in many cases be indicated. Fresh fruit should be eaten at breakfast to a greater extent than is usual, and stewed fruits, such as prunes or apples, are excellent laxatives. Fat or oily substances in the form of butter, olive oil, bacon, etc., are often desirable. The occasional use of brown bread and oatmeal is effectual. The importance of a sufficient supply of fluids should be impressed on the patient, and it is often important that a tumblerful of water should be taken in the morning before breakfast, and in severer cases another at night. It may be hot or cold, according to circumstances, but should not be merely warm, as this may excite vomiting; it is also better to sip it at intervals while dressing. The author recommends aids of a mechanical nature, such as small enemata of glycerin, olive oil, or simple cold water. Another method is the employment of abdominal massage either by the hand or by a weight. This method also reduces obesity, itself a factor in the production of constipation from the loss of power it causes in the action of the abdominal muscles. It should be kept in view that the object for which drugs are used is not to produce purgation, but to act as tonics to the intestine in order to restore its natural function, and that their employment is to be discontinued when this has been attained. Among remedies of this class aloes holds a high place. Its action is slow, and chiefly on the colon and the lower bowel. It may, with advantage, be combined with *nux vomica* or *belladonna*. *Cascara* is also a useful intestinal tonic when given in small doses, full doses being too large to produce the most useful action of the drug. It may be combined with the liquid extract of licorice, which assists its action.

Saline aperients or mineral waters are less adapted for the treatment of habitual constipation, but the milder forms may be taken diluted, instead of plain water, in the morning, the amount being reduced and plain water substituted as improvement takes place. It is necessary, says the author, to warn patients against *rhubarb*, as its secondary astringent action renders it wholly unfitted for habitual use; mercurial preparations, also, should not be used for this purpose. Care and skill are necessary in the treatment of habitual constipation, and it should be impressed on the patient that it is not a trivial complaint to be treated by an occasional pill, often a quack one, which leaves his last state worse than his first, and renders rational treatment a much more difficult task.

Ethereal Extract of Male Fern in the Treatment of Cysticercus Disease.—Dr. R. Feletti, of Catane, contributes an article on this subject to the *Mercredi médical* for August 29th, in which he says that he has used this extract in three cases with good results. The first case was that of a man, forty-six years old, who for three years had convulsions and persistent headache accompanied with vertigo and vomiting. His mental faculties were feeble, especially his memory, and his speech was slow and jerky. Small subcutaneous nodules appeared all over his body. At the clinical examination the author was struck

with the apathy and slowness which accompanied all the man's actions. His strength had diminished; the dynamometer marked twenty-six on the right hand and twenty-one on the left hand. The tendinous and cutaneous reflex motions were maintained and were prompt. The susceptibility of the muscles was normal; the sensory organs and their functions were normal, and the sense of feeling was nearly so. The electric sensibility appeared diminished on the left side. The electric excitability on the same side failed to respond to the galvanic current; to the faradaic current, however, the side was sensitive, except at the left peroneal nerve. Another thing which attracted the author's attention was the presence of innumerable nodules which extended over the body, some under the skin and others in the muscles; the majority of them were as large as an olive, hard, smooth, and with a slight lateral invagination. The thoracic and abdominal organs were normal. No proglottides or eggs were found in the fecal matter. During the man's stay at the hospital he had headache, vertigo, and partial convulsions, with or without loss of consciousness.

The extract was administered, and in all he took two hundred and seventy grains, and, although it was not well borne, there was a notable decrease in the size of the subcutaneous and intramuscular cysticerci. There was very little amelioration of the cerebral troubles; vertigo and headache persisted, although the weakness and apathy diminished slightly. His condition, however, gradually became more aggravated and death occurred about a month later. From an observation of this case, in which the treatment had diminished the subcutaneous and intramuscular nodules, the author concludes that the extract of male fern has some action upon the cysticercus. In cerebral cysticercus infection its action may be doubtful, since aggravated symptoms had followed the slight amelioration in the case mentioned, although Dr. Feletti himself thinks that its efficacy can not be denied, and he attributes the man's death to the morbid processes created in the brain and in the meninges by the parasites, notwithstanding their destruction.

The second case was that of a man who was attacked with cerebral cysticercus. The patient had vertigo accompanied with vomiting, epileptoid convulsions, and loss of consciousness. Sodium and potassium bromides were administered, but the vertigo persisted. The patient suffered from headache and giddiness, and nodules appeared on his body. The author attributes the nervous troubles to the irritation which was caused in the brain by the cysticerci, and he prescribed a daily dose of nine grains of the extract, which was well borne by the patient. A month later the nodules disappeared, the pain in the head became less, but the giddiness persisted. Some months later the convulsions returned, accompanied with contractions of the muscles and loss of consciousness; bromides were again administered and the nervous troubles disappeared. In this case, says the author, the disappearance of the nervous symptoms may be attributed to the bromides, although it must be noted that they had already been given before the other treatment was begun, without good results.

The author concludes from his observations, that the ethereal extract of male fern is a sure remedy for cysticercus disease in the muscles and under the skin, and also very probably for that of the brain. He advises small doses, from six to nine grains daily. These are well borne by the patient, and should be repeated for from thirty to forty days.

Women and the Bicycle.—The *Boston Medical and Surgical Journal* for September 6th has an editorial on this subject in which the question is asked, Should women be encouraged to ride bicycles or not? It is a question so often asked by patients, says the writer, that the opinion of a prominent Paris

physician on this subject may be of some interest. In order to form an accurate opinion, he says, the age, the weight of the woman, whether she can ride without falling off, what kind of clothes she intends to wear, and what condition her digestion is in must be ascertained. A woman who is young, quick, and not too clumsy or fat may ride longer distances than one who has not these advantages. More good is derived from the bicycle if the exercise is taken regularly and according to the laws governing athletic exercises, and if the distances traveled are not too long. An important consideration is the appearance of the rider. Her self-possession and general feeling of well-being are improved by an appropriate dress, the details of which would require too much space to describe, but as a general rule it should be insisted upon that corsets should be discarded if it can be done without prejudice to the fit of the dress. A wise and proper use of the bicycle as a means of recreation, the author says, has been followed by good results in a number of cases, but, on the other hand, an appreciable amount of harm has been done by riding too much and in badly chosen localities. From this it will be seen, the article goes on to say, that a medical opinion should not be given without careful consideration of each individual case, and that no definite rule can be laid down which will cover all contingencies.

The Management of Eczema.—At the recent meeting of the Section in Dermatology of the British Medical Association, a report of which appears in the *British Journal of Dermatology* for September, Dr. Malcom Morris, of London, read a paper on this subject in which he presented a summary of the general results of his own experience in treating the disease. With regard to internal remedies, he said, the less they were employed the better. In ordinary chronic eczema, where the patient's health appeared to be unaffected and there was no reason to suspect constitutional dyscrasia or neurotic disturbances, local treatment only should be employed. If internal remedies were given, the selection of the particular drugs used must be governed by certain definite indications. When the lesions were acutely inflammatory, antimony was most useful. The speaker began by giving from ten to thirteen minims of the vinum antimoniae, repeating the dose in an hour and, if necessary, again two hours later. The interval between the administrations was gradually increased, the dose being, at the same time, reduced to six minims. This should be given three times in twenty-four hours until a distinct subsidence in the intensity of the inflammation became manifest. The indication for antimony was the presence of arterial tension; on the other hand, depression was a positive contra-indication of this drug. If a neurotic element was clearly present, sedatives and nerve tonics must be combined with local treatment. The indication for the use of sedatives was great nervous excitement accompanied with sleeplessness. If, however, the neurotic element showed itself in the form of depression, nerve tonics were indicated. The speaker had found quinine the most useful. If there was much discharge, belladonna might be combined with the quinine. Phosphorus was another drug of great value in nervous depression, and strychnine also was useful. The indication for arsenic was a deficiency of nerve force combined with absence of acute inflammation in the lesions. If the eruption was of an actively inflammatory type, arsenic was positively contra-indicated. If the disease showed a marked tendency to frequent exacerbations, ergotine might be useful. Malnutrition, weakness, and anæmia were indications for cod-liver oil and for general tonic treatment on ordinary principles. Iron, however, was contra-indicated by the presence of acute inflammation. In women menstrual derangement or uterine diseases must be remedied and hysteria or the disturbances incident to the climacteric

period must be combated by such remedies as musk, valerian, etc.

With regard to the diet, the speaker stated that, in his opinion, diet had no influence at all, except indirectly. If a constitutional condition underlay the eczematous process, the dietetic restrictions indicated in the circumstances were called for. If the lesions were of an acutely inflammatory type, the diet should be limited in quantity. Apart from these indications, the speaker had seen no reason to think that restrictions of diet had had any good effect; on the contrary, he had seen a "lowering" regimen do positive harm by weakening the patient. Anything, however, which disordered the gastro-intestinal tract or which caused acidity, insomnia, flatulence, palpitation, or vaso-motor disturbance must be avoided. The same principle applied to drinks, but here strict moderation in quantity was necessary.

With regard to the principles on which local treatment should be carried out, Dr. Morris said that he aimed, first, to destroy micro-organisms; secondly, to protect the inflamed surface from the air and from further microbic invasion; and, thirdly, to soothe irritation. In the application of local remedies the strength must be tempered to the tolerance of the patient's skin, and the application must be kept continuously in contact with the affected parts. The best remedy for local use in dry chronic eczema, especially of seborrhoeic origin, was sulphur, and after that resorcin. These drugs not only destroyed the micro-organisms, but gave rise to exfoliation of the horny layer and brought away with it the microbes which had penetrated to the deeper parts of the epidermis. When inflammation was acute, ichthyol was particularly useful. Other antiparasitic remedies were salicylic acid, white precipitate, boric acid, and carbolic acid. When the discharge was profuse, a weak solution of boric acid was useful; if itching was troublesome, weak lotions of carbolic acid or tar were most beneficial.

A change of climate was often productive of good in overcoming the tendency to recurrence of eczema in those predisposed to the disease. Dr. Morris knew of no special indications in this respect, except that, eczema being a catarrhal disease, climates that were apt to produce catarrh should be avoided. A too bracing climate should be avoided; the same might be said of sea air. Sea bathing very often produced a recurrence of the disease, but it sometimes undoubtedly counteracted the tendency to relapse.

With regard to mineral waters, Dr. Morris's conclusions were as follows: 1. No spring known to him had any specific action on eczema. 2. Such virtue as sulphur waters possessed, applied externally, was due chiefly to their parasitic action and partly to the temperature at which they were applied. 3. Such virtue as sulphur, chalybeate, or arsenical waters possessed, when taken internally, was due to their action in quickening the processes of metabolism, in increasing the number of red corpuscles in the blood, and in giving tone to the nervous system.

Potassium Iodide in Actinomycosis.—In the *Union médicale* for August 23d there is an article on this subject in which the author remarks that this disease is rare in France, not only in man, but among animals. There have been only twenty-six cases in the human subject observed in that country since those reported by Lebert in 1857 and by Robin in 1870.

M. Thomassen, of Utrecht, conceived the idea of employing potassium iodide in the treatment of cattle attacked with actinomycotic glossitis. The treatment was very successful, all the animals subjected to it having recovered. For several years M. Thomassen has continued his experiments without a single failure. During the past two years American veterinary surgeons

have employed potassium iodide with excellent results. Out of one hundred and eighty-five animals treated with it, one hundred and thirty-one were completely cured; the others probably would have been if the remedy had been given in time. On another occasion fifty-three animals were given the potassium iodide and all were cured.

This remedy was first prescribed in Holland, not only for actinomycosis of the tongue, but for its other forms, and excellent results were obtained. The following observations were published in the *Recueil de médecine vétérinaire* in 1893 by M. Nocard: In the first case there was actinomycosis of the roof of the mouth, with perforation of the submaxillary region and extended and profound infiltration of the same region. Potassium iodide was given in doses of from twenty-two to thirty grains a day, and immediately there was a notable amelioration, which continued until recovery. The second case was one of cæcal actinomycosis. A tumor was found in the region of the cæcum from which pus escaped when it was opened. There was a cavity between the intestines, large enough for the finger to penetrate, which was packed with iodoform gauze. Three weeks later the patient left the hospital apparently cured. At the end of a month, however, he returned, as the wound had opened; yellow grains were found in the pus which escaped. From fifteen to twenty-two grains of potassium iodide were given every day, and in less than a month recovery was complete.

This treatment was prescribed by M. Meunier in a case of cervical actinomycosis accompanied with marked atrophy. Twenty-two grains of the potassium salt were administered every day, and an ointment of the same drug was used. In this case recovery was rapid. Another observation, published by M. Netter in the *Union médicale*, 1893, is of the greatest interest, says the writer, not only because it shows the powerlessness of surgical intervention, but because it shows the efficacy of potassium iodide. It was a case of thoracic actinomycosis, which is well known to be always fatal. The amounts prescribed varied from fifteen to ninety grains a day, and the effect was almost instantaneous and miraculous—within a month recovery was assured. The total amount of potassium iodide taken was nine hundred and fifteen grains. Other cases are cited by the author, who draws the following conclusions from these observations: 1. That actinomycosis has nearly always been fatal. 2. That the powerlessness and uselessness of surgical intervention have been recognized in the majority of cases. 3. That at the present time potassium iodide is a remedy which assures recovery in this disease.

With regard to the mode of administration, M. Netter advises that it should be given for five consecutive days, allowing an interval of two days to pass before continuing it; this method should be kept up until recovery. With regard to the dose, it need not necessarily be a large one in order to obtain a cure. M. Netter gives in the beginning ninety grains a day, but he rapidly reduces this to from forty-five to thirty grains. The patient must be watched, as slight symptoms of iodism may arise, such as coryza, conjunctivitis, acne, etc.

Potassium iodide, says the author, may at first appear to act on parasites which are susceptible to extremely weak doses of this drug, but this opinion does not hold, in view of M. Nocard's experience during which he obtained actinomycotic cultures in gelatin to which one per cent. of potassium iodide had been added; therefore it must be supposed that potassium iodide acts on the anatomical elements and renders them capable of resisting the parasites.

Wagner's Music and its Physiological Effects.—The *Province médicale* for September 1st contains an abstract of an article published in the *Médecine moderne*, in which the author

remarks that it is well known that music exercises a quieting influence in certain mental diseases, and that it has been made use of medically in some mental affections.

An American physician, Dr. Warthin, of Michigan, is credited with having made an experimental study of the physiological effects of music on the human organism. Having noticed, he said, in listening to Wagner's music, that the audience appeared to be in a condition strongly analogous to, if not identical with, that of hypnotism, he had concluded that, in order to ascertain the exact effects of music on the physiological functions of the human body, it was preferable to hypnotize the subjects, in order to do away with all exterior impressions. He took five men and two women, who were willing to submit to the experiment. All were in good health and enjoyed music, although they did not possess well-developed musical sensibilities. In their normal condition music did not produce any great emotion or any appreciable physiological effect. The subjects were placed in a room with a piano, and, after falling asleep in the ordinary way, they were hypnotized, whereupon Dr. Warthin made the following suggestions: "You are dead to everything in the world except the music which you are going to hear. You will feel or know nothing except this music. When you awaken, you will recall the sensations that you have experienced." After the subjects were thus prepared, one of Wagner's pieces was played, and the physiological effects on the pulse, the respiration, etc., were observed and registered. The subjects were afterward awakened, and notes were taken of their sensations. For example, the effects on Dr. M. — were as follows: The pulse at first became rapid and fuller, and the tension increased; the pulsations rose from 60 to 120; then the pulse became very rapid and the tension diminished. At the same time the respiration increased from 18 to 30 a minute. The face showed great agitation; the entire body moved; the legs were raised and the arms beat the air, and the body was covered with a profuse perspiration. When the doctor was awakened, he declared that he had felt the music, not as a sound, but as a general sensation, as a sort of excitation produced by "rushing furiously through space." The same sensation was also experienced by another subject, and the same effects on the pulse and the respiration were noted, but there was no movement of the body or any change in the facial expression. The skin was covered profusely with perspiration. It was noticed that the same selection played during a normal sleep produced no effects comparable to the results observed during hypnotism, and did not determine any physiological modification.

The Valhalla music gave rise at first to a slackening of the pulse with increased tension, afterward extreme acceleration of the pulsations, and a diminishing of the tension. The sensation experienced by the subject was that of "sublime grandeur and calm." The music from the scene where Brünhilde calls Sigmund to Valhalla gave rise to marked modifications of the pulse, which became weak, irregular, and very small. The respiration diminished in frequency, and became sighing; the face was pale and covered with a cold perspiration. The sensations experienced by the subject were those resembling "death"; no other definite impressions could be described.

Dr. Warthin noticed that, in order to produce hypnotism, music was superior to all other ordinary methods. In this respect, the influence of different selections was rather variable. Thus, one of the subjects could not be hypnotized except with a certain selection from Tannhäuser, and before the fifth measure was reached he was ordinarily completely hypnotized.

Wagner's music has been accused, says the writer, of provoking erotism, but Dr. Warthin's experiments have shown that this accusation is entirely without foundation. Various pas-

sages from Die Walküre and from Tristan and Isolde, which had been particularly criticised from this special point of view, had given rise in hypnotized subjects to sensations of "desire" and of "frenzy," but not the least sensual excitation or erotic suggestion. Dr. Warthin recognized, however, that, aided by verbal suggestion, the music of these passages might produce similar effects, and that then the sensation of "desire" would approach that of "physical desire"; but the musical sounds themselves were incapable of provoking a condition of genital erethism.

These are the most interesting facts noted by Dr. Warthin in the course of his experiments. From a therapeutic point of view, there is not much to be gained from them. The author remarks that he would not fail in respect to Wagner, but he thinks that the results which appear to be most clearly set forth in these experiments are the sudatory and hypnotic effects of his music. In less scientific terms, the music from Die Walküre produces, above all, perspiration, and that from Tannhäuser induces sleep.

Ingrowing Nails.—At a recent meeting of the *Congrès de l'Association française pour l'avancement des sciences*, a report of which is published in the *Progrès médical* for September 1st, M. Félix Régnauld, of Paris, read a paper on this subject. He remarked that different writers had attributed this trouble to many causes—such as lymphatism, improper shoes, etc.—without defining the relative importance of each. Some writers had regarded shoes as the principal influence in causing ingrowing nails, although Dionis had observed ingrowing nails among barefooted monks, and Binaud had seen it among tuberculous patients who were confined to their beds. Tight shoes had deviated the great toe and bent the nail, but not sufficiently to cause ingrowing, and, although it might be curved like a claw and sunk deeply into the flesh, it did not necessarily give rise to ulceration. Poniet had shown that lymphatic persons who had small, flat nails and a thick great toe were often subject to ingrowing nails. The constitutional condition was the primary cause; shoes played only a secondary part and applied only to one class of ingrowing nails, which occurred in healthy, non-strumous persons, the great toe of whom had been more or less altered by the kind of shoes worn.

M. Régnauld thought that traumatism and dirt were predominant factors in giving rise to cultures of common microbes in the pus in the groove of the nails. Sometimes, also, a contusion of the great toe had caused ingrowing nail. Traumatism might occur after cutting the nails. The speaker had observed two cases, one where the nail had been improperly cut and the skin broken; several days afterward the nail had begun to grow in. In the other case, that of a young man who had his nails attended to in a bathing establishment, suppuration had set in eight hours afterward. This pathogenic knowledge, said the speaker, had an important bearing in relation to the treatment; if ingrowing nails were properly cared for at the beginning, they were easily cured by constant bathing in carbolyzed water and by antiseptic dressings.

Sudden Death in Bicyclists.—At a recent meeting of the *Académie de médecine*, an account of which appears in the *Journal des praticiens* for September 5th, M. L. Petit reported three cases of sudden death due to bicycle-riding in patients affected with heart disease. The first case had been that of a man, sixty years old, who had appeared to be healthy, and the second that of a man who had recovered from an attack of typhoid fever. Dr. Petit thought that old people, and those affected with cardiac troubles, should not indulge in bicycle-riding, as it might be attended with serious and sometimes fatal results.

DR. C. A. L. REED'S ARTICLE ON KRAUROSIS VULVÆ.

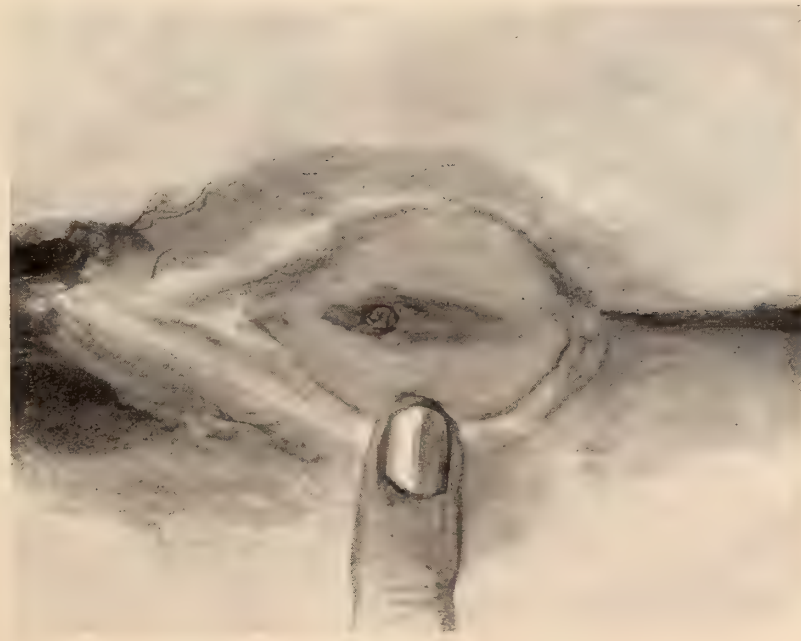


FIG. 1.

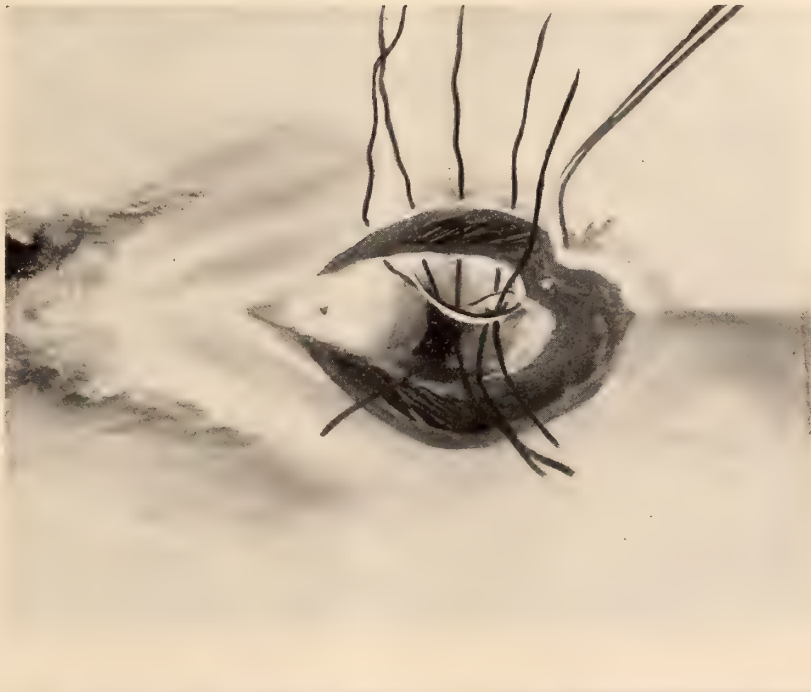


FIG. 6.



FIG. 7.

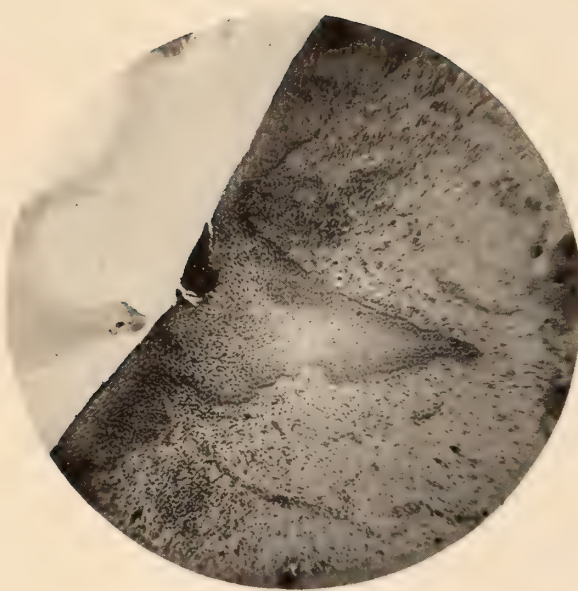


FIG. 4.

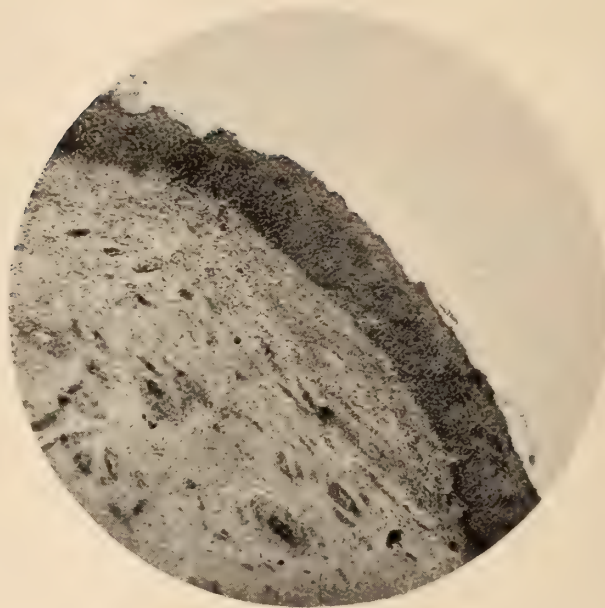


FIG. 5.

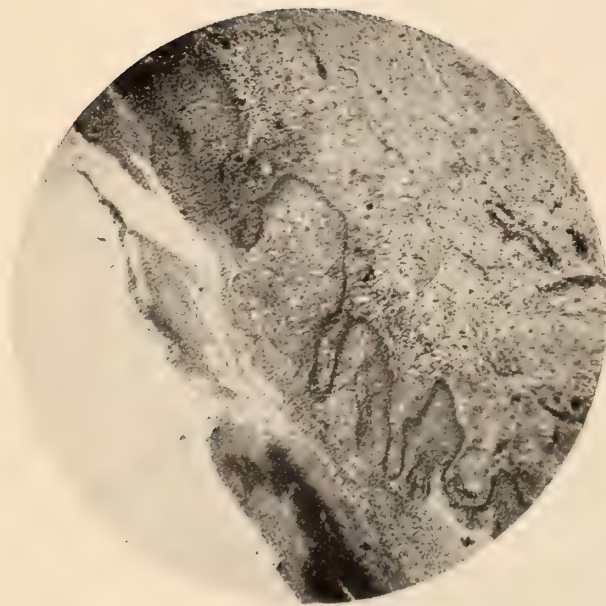


FIG. 2.

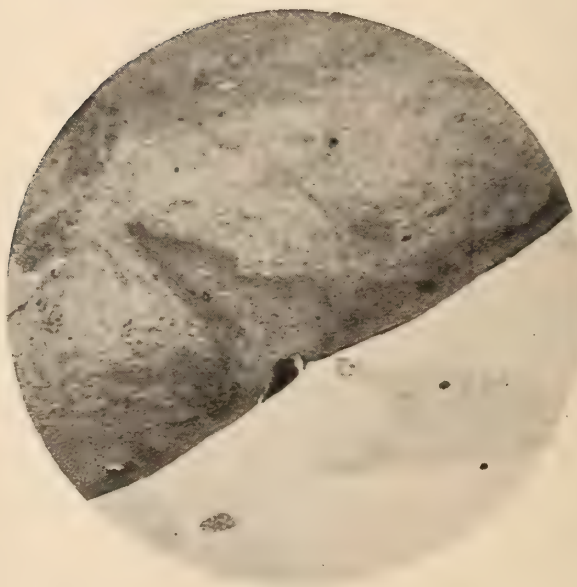


FIG. 3.

Original Communications.

PROGRESSIVE CUTANEOUS ATROPHY
OF THE VULVA (KRAUROSIS VULVÆ)

CONSIDERED WITH
SPECIAL REFERENCE TO ITS OPERATIVE TREATMENT.

REPORT OF CASES. ILLUSTRATED.*

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THE disease which comprises the title of this paper has become generally known by the name of *kraurosis vulvæ*. This name, which was coined by Breisky, simply signifies shrinkage of the vulva, the initial term being derived from the Greek word *κραιρός*. The chief objection to be urged against this terminology is that it is not sufficiently definitive. As employed it may and naturally does imply shrinkage of any or all of the structures which collectively comprise the vulva, when, as a matter of fact, the diseased changes which it is intended to indicate are restricted to the skin and its immediate connective tissue covering either a particular area or all of the pudendum, including the fourchette and perinæum. I have never been able to observe either clinically or microscopically the extension of this disease to the so-called mucous membrane within the introitus vaginæ, nor have I been able to discover from any published reports satisfactory evidence of the occurrence of the disease in this latter locality; but even if it were true that it does thus occur, either primarily or by extension, the almost complete histological identity of the lining of the vagina at the inlet with the adjacent skin leaves practically unmodified the statement that the disease is essentially one restricted to the vulval integument. Couple with this the additional facts—namely, that the disease is atrophic in its ultimate manifestation, and that it always persists until the involved areas of integument undergo the extreme changes which shall be presently described—I am convinced that for English-speaking people the term progressive cutaneous atrophy of the vulva must be more satisfactory than the Greek derivative which has already acquired a prominent place in the literature of the subject. I feel that I am confirmed to an important extent in these views by the Germans, who, although employing the word *kraurosis*, speak of the disease as *Haut-atrophie am pudendum muliebre*, and more particularly by Sängner, who, since the preceding lines of this paragraph were written, has designated the disease "*Progressive prä-senile und senile atrophie der Vulva mit Pachydermie*."

The history of the disease, at least so far as modern literature is concerned, is very recent. The credit of having first described its clinical characteristics must be accorded to our distinguished fellow-countryman, Dr. Robert F. Weir, of New York, who in 1875 † described it as an

ichthyosis of the vulva. Tait, in his more recent work, alludes to the same condition as having been observed by him at about the same time that Weir's description was published. No account of the pathology of the disease was published until 1885, when Breisky, of Prague, reported * twelve cases with careful study of their pathological features. Although the disease had doubtless been observed for a long time, even prior to 1875, there does not seem to be evidence that it was looked upon as an entity in the clinico-pathological category until the publication of the studies by Breisky. There have been but few contributions to the subject since that time, but all of those which have embraced original observation have tended to establish the condition as a distinct disease, a conclusion which has been resisted only by such *doctrinaire* writers as have seen fit to give attention to the matter. The most authoritative expression on this phase of the question, however, is that which emanated from the *Gesellschaft für Geburtshülfe und Gynäkologie zu Berlin*, ‡ at its meeting in February of the current year, on which occasion the consensus of opinion, based upon the fullest consideration of recorded facts and upon the widest personal experience of the participants in the debate, was to the effect that the disease in question was entitled to recognition as a distinct entity.

The ætiology of this disease is very obscure. It occurs without the previous existence of any other disease of the skin of the vulva. In Orthman's cases no sugar could be found in the urine and there were no histories of syphilis. In one of my own cases, occurring in a woman of fifty-six, there was the history of syphilis in early life, but this history was not confirmed by any later manifestation of the specific complaint. I am inclined to look upon the facts in this case as having been rather of chance occurrence than as having any causal relationship. It is indeed fairly established that this atrophy of the vulva is not of syphilitic origin, a fact which is sufficiently confirmed by Lewin, § who stated that he had treated between seventy thousand and eighty thousand women in his service at the Charité, and that in all that experience he had not encountered a single case of *kraurosis vulvæ*. Gonorrhœa and a chronic non-specific vaginal discharge are recognized by some observers as probable ætiological factors. The disease is more common in women after forty, a fact which would seem to identify it with the usual trophic changes of senility. The fact that it occurs in early life, during the active continuance of menstruation, and in the absence of any indication whatever of precocious menopause, at once dissociates it from necessary connection with those changes of nutrition, either local or general, which occur in connection with advanced years. It is true, however, as Olshausen has stated, * that in a limited number of cases the atrophic change seems to be inaugurated by the extirpation of the uterine appendages, and I have observed this in one of

* Read before the American Association of Obstetricians and Gynecologists at Toronto, Ontario, September 20, 1894.

† *N. Y. Med. Jour.*, March, 1875.

* *Archiv f. Heilkunde*, Prague, 1885.

‡ *Ctrbl. f. Gynäk.*, 1894, No. 13, pp. 309-313, March 31st.

§ *Ibid.*

* *Ibid.*

my own cases (Case VI). In one of Javonsky's cases the disease seemed to start in the cicatrix of a previously lacerated perinæum. I am forced to conclude, after carefully studying the details of such published cases as have come under my observation, that the conditions which have been suggested as causal are so various as to seem entirely accidental. So far as microscopic research is concerned, none of these conditions have been demonstrated to have an ætiological value. The fact, however, that the disease, although essentially inflammatory in character, is limited either to circumscribed areas in the vulval integument or else to the entire pudendal skin, and the additional fact that it occurs without adequate demonstrable local cause, forces us to consider either the peripheral trophic nerve filaments, or else the ganglia whence they originate, as the possible seat of initial lesion.

The pathological and clinical features of these cases are characteristic. The first changes obvious to the naked eye consist of small vascular areas around the introitus vaginæ. These areas are not elevated, as if seats of merely inflammatory engorgement, but are slightly depressed relatively to the adjacent epithelial surfaces. They are exquisitely painful to the touch, and efforts at sexual intercourse are generally agonizing and futile. About this same time careful inspection will reveal a narrowing of the vaginal orifice, associated with diminished elasticity of the structures. The cutaneous or muco-cutaneous surfaces will now be observed to have lost a certain proportion of their pigment, giving them a more or less translucent appearance, which increases until, as in one of my cases yet under observation, it becomes so transparent that the larger capillaries and minute ecchymoses may be readily discerned beneath it. The skin thus affected becomes tense, effacing in a more or less pronounced degree all the normal folds of the vulva and narrowing the vaginal orifice until, in the case of a multipara, as Mr. Tait says,* "incredulity may be excused when the patient states that she has borne children." (See Fig. 1.) This shrinking is one of the leading features of the disease, and it may be manifested in one locality rather than in another, according as one locality rather than another is the center of the diseased activity. It may be stated, however, that whatever particular structure may be victimized by the atrophic process, it does not follow that the disease will become thus limited, but that, on the contrary, it has a tendency to progress until all the vulva is involved. Breisky speaks of the shrinking (*Schrumpfung*) particularly of the nymphæ, which certainly show liability to this disease. Fusion of the labia minora and the labia majora, to the extent of the apparent disappearance of the former, has been observed in two of my own cases and by Ohmann-Dumesnil,† who also records a distinct wasting of the mons Veneris. The integument from the mons Veneris to the meatus urinarius may be so tense as to obliterate all the normal folds, the glans clitoridis being manifest by a depression rather than an elevation. In a case by Scholtz,‡

recorded by Ohmann-Dumesnil, there was complete disappearance of the labia, both large and small, associated with complete alopecia vulvæ, with the exception of a small tuft of hair on the mons Veneris.

The microscopical examinations in my own cases were made in my private pathological laboratory by my associate, Dr. Henry W. Bettman. A summarization of his careful notes may be presented as follows (Fig. 4)*: There is marked hyperæmia of the integument. Hæmorrhages into the substance and upon the surface are noted. The epithelium is of very irregular thickness, being here and there replaced by extravasated blood. The condition of the epidermis varies in different sections and in different places in the same section. Its leading characteristic may be designated as extreme irregularity. In some places it is of normal thickness, in others it is almost entirely or entirely eroded. In some places there are small rents or fissures, the surface epithelium at such points being lost or displaced, while irregular cracks extend a short distance into the corium. The number of such fissures is small. In some places the epidermis is covered by bloody extravasation; in others it is lifted *en masse* from the corium by an effusion of blood. The effused blood lies, as a rule, directly upon the surface of the eroded epithelium (see Fig. 2), although it is occasionally found between the epithelium and corium. The blood-cells are very well preserved and stain beautifully with eosin; here and there the blood has taken on the reddish-brown color characteristic of old blood effusions. Here and there are epithelial "pearls," not very different from the well-known epithelial nests of epithelioma, but are smaller and less typical. The corium presents two conditions—viz.: 1 (see Figs. 3 and 4). *Earlier Stage*.—Marked by cellular infiltration and in some places pronounced hyperæmia. Small round cells everywhere invade the subepithelial tissue, in some places diffusely, in others forming irregular collections. The papillæ are infiltrated, often occupied entirely by small round cells, so that none of the original connective tissue can be detected. In places the papillæ are covered with a very thin layer of epidermis, in others they are entirely bare, granulation tissue extending to the surface. There are no hæmorrhages into the corium. 2 (see Fig. 5). *Later Stage*.—Cellular infiltration less marked, and characterized by an almost total disappearance of papillæ. The disappearance of the papillæ is unquestionably due to the organization and shrinking of the granulation tissue. Various stages can be noted in any given section. There were no observations of nerve endings. Orthman† studied five cases from the clinic of Martin in Berlin. In one case microscopical examination was made. The tissues were found to be partly hypertrophied and partly atrophied, thus demonstrating the earlier and later stages of the disease in the same section. The rete Malpighii was markedly diminished, and in some instances entirely obliterated. There was absence of papillæ, and the wave-like arrangement of the corium was occasionally en-

* *Dis. of Wom. and Ab. Surg.*, Philadelphia, 1889, vol. i, p. 53.

† *New Orleans M.d. and Surg. Jour.*, March, 1890, 635.

‡ *Loc. cit.*

* I am indebted for the photo-micrographs illustrating this article to my friend, Professor M. H. Fletcher, M. D., D. D. S.

† *Ztschr. f. Geburtsh. u. Gynäk.*, Stuttgart, xix, 283–296.

tirely lost, the latter being dense and sclerosed, resembling scar tissue. There is occasional small-celled infiltration, increasing from above downward; hyperplasia of tissue at marginal zone where healthy skin begins; horny layer of epidermis much wider, the cells lying in many strata over the widened rete Malpighii; papillæ and entire corium increased in respect of width, and infiltrated with small cells. In another case, which was ulcerated, his recorded observation is as follows: "Section through large ulcer in upper third of right labium majus; on inner side, hypertrophy of epithelium of epidermis, gradually diminishing toward and disappearing at ulcer; papillæ also obliterated at ulcerated part. On outer side, the same process reversed; epithelia increasing up to hypertrophy; corresponding with the gradual disappearance of epithelia on both sides of the ulcer, the papillæ increase, often penetrating to the superficies of the epidermis; there is a complete small-celled infiltration of subcutaneous fatty and connective tissue, filling up clefts in latter, usually in a direction perpendicular to superficies; a few lumina of vessels seen on the tissue compressed and narrowed by surrounding infiltration and hypertrophy." Orthman also failed to observe the nerve endings in any of his sections. Orthman also made careful bacteriological studies of his cases, but found only the micro-organisms which usually occur about the vulva and vagina.

The symptomatology of progressive atrophy of the vulva varies in different cases. It usually happens that the first complaint of the patient is with reference to dyspareunia. The painful puncta of the early stage and the painful inelasticity of the later stage are necessary impediments to the copulative act. Yet in the absence of the sexual relation the disease is not of itself particularly painful; on the contrary, in its later stages there seems to be a loss of sensation in the entire diseased area. Itching is a very inconstant symptom, one more frequently absent than present. In a study of thirty-five cases by my friend Dr. Ohmann-Dumesnil,* thirteen patients are recorded as being afflicted with itching varying from moderate to intense; Janovsky's were not afflicted with this symptom; Orthman's,† which were not included in Ohmann-Dumesnil's table, were five in number, only one of whom applied for relief on account of itching and intense burning. This symptom occurred in two of the writer's own cases, but was restricted to the earlier stages of the disease. Heitzmann, however, records it as persisting after repeated curettings. Tait speaks of the disease as being painless in its last stages. The objective features of the disease, upon which the chief diagnostic importance is placed, have been recounted in the paragraph relating to pathology.

In the earlier stages the disease is liable to be dismissed with the convenient diagnosis of vaginismus. Careful inspection will, however, reveal the sensitive vascular areas just within the introitus, and will show the already established shrinkage of the vulval integument. During the stage of itching, sometimes absent, this disease

may be confused with neurofibrosis vulvæ, as described by Webster.* As the former disease is atrophic and the latter hypertrophic in character, a careful inspection will reveal the difference even in the early stages. When the areas of atrophy begin to be well defined, the kraurosis may be mistaken for ichthyosis. This is all the more confusing because of the disposition of the shrunken patches to assume the form of polygonal plaques. This, however, according to the observation of the writer, is true only as relates to the atrophic areas as a whole; but these latter when once formed do not fissure and subdivide as is true of ichthyosis. In the latter malady there is a tendency to epithelial exfoliation which is distinctly not true of progressive atrophy.

Mr. Tait † says that "the patient should always be informed that the progress of the disease will extend over years, that it will certainly get well in time, but that treatment from time to time will give her relief." From this author's description of the final stage—*i. e.*, of parchment-like induration of the diseased integument—it must be inferred that what he means by recovery must relate to the subjective symptoms rather than to restoration of the parts to their normal physical condition. On the other hand, the opinion of all observers is to the effect that without operative relief these cases are progressive and permanent. We are never justified in promising cure by any sort of treatment, although pronounced relief has been realized. In two of the author's own cases, treated by excision, marital relations were satisfactorily re-established after an interruption extending over a series of years, the remaining vulval structures manifesting only normal characteristics.

The treatment may with propriety be divided into palliative and curative. The former consists in the application of various medicaments for the relief of pain. Carbolic acid, by virtue of its primary or anæsthetic effect, affords temporary relief; but its secondary or escharotic effect leaves the terminal nerve filaments even more exposed than before, with a corresponding increase of discomfort. Tait speaks of a solution of neutral acetate of lead in glycerin placed on cotton between the nymphæ as having a soothing effect when used at bedtime. He condemns cocaine. The application of stick nitrate of silver, repeated until the degenerated structures are destroyed and replaced by patches of cicatricial tissue, mitigates the suffering but does not arrest the progress of the disease. Curetting to the extent of scraping away all the shrunken skin has been practiced by Heitzmann, but as the treatment is a prolonged one, having involved in one case as many as ten repetitions of the severe operation, and as the result of the treatment must involve the deposit of inelastic cicatricial tissue over areas more or less extensive, the method is hardly to be commended as a line of practice.

The curative treatment is that by excision. The writer applied this practice in an incipient case several years ago. The disease in this instance had only advanced to the

* *New Orleans Med. and Surg. Jour.*, March, 1890, p. 638.

† *Ztschr. f. Geburtsh. u. Gynäk.*, Stuttgart, 1890, vol. xxix, pp. 283-296.

* *Lab. Rep. of the Royal Coll. of Phys.*, Edin., vol. iii (1891).

† *Loc. cit.*

stage of vascular areas. These were located around the intrectus, from both sides of which an ellipse of mucous membrane was removed, the denuded margins being brought together by interrupted sutures. Temporary relief was realized, but the disease was manifested in the integument after seven months. Martin, reported by Orthman, inaugurated the practice of more complete excision. The technique is not in the least difficult, although it varies according to the location of the disease. In all instances it involved the complete removal of the diseased tissue and the approximation of the raw margins. The usual laxity of the deeper tissues about the vulva readily admits of this plastic manœuvre, although in one case, involving the vestibule, it was found necessary to liberate the lateral flaps by secondary incisions half an inch distant, after which the skin glided readily over the pubes and was approximated by a central line of sutures. The secondary incisions were then readily closed in the same way. If this operation is done after the limits of the disease have become well established, no fear need be entertained of recurrence. This has been true in the cases of both Martin and the author, although from the case above alluded to it is evident that if excision is practiced in the early stage of the disease further manifestations may occur beyond the field of operation. Orthman reported* five cases successfully operated upon by Martin in this way, and Martin has since reported† three additional cases, all of them successful. The operation and its results are fairly well represented in Figs. 6 and 7 respectively, the case in question (Case III) having been one in which the disease was manifested particularly in the nymphæ, fourchette, and perinæum. The free-hand drawings by Mr. Hugh Horsfall are quite as successful as can be expected in handling so difficult a subject.

I beg leave to append brief summaries of the following illustrative cases:

CASE I. *Incipient Kraurosis Vulvæ; Premature Operation; Subsequent Development of the Disease beyond the Area of Operation.*—Mrs. B., Hamilton, O., aged forty-two years, the mother of two children, came to me in October, 1889, complaining of painful coition. I examined her carefully and found the seat of pain resident just within the ostium vaginæ. There seemed to be spasmodic contraction of the canal when I made an effort to introduce my finger. Careful inspection revealed the presence of several red spots, very painful to the touch, which were arranged in a row on either side of the vagina at a position corresponding to the location of the obliterated carunculæ myrtiformes. I removed these red spots by excision, taking a small ellipse of tissue from either side of the mucous membrane. The operation was followed by prompt union and relief of the symptoms. The patient soon after removed to Colorado and I have not seen her since. I, however, received a letter from her two years later, in which she stated that after a few months of improvement she again experienced pain at intercourse; that the distress had increased until the marital act had become impossible. Her expressive statement was that she "seemed to be all closed up." I now feel convinced, in the light of the lesson taught me by the next case, that this patient

was afflicted with incipient progressive atrophy of the vulva at the time of my operation, and that the disease has since become manifested in its usual form.

CASE II. *Incipient Kraurosis; Premature Operation; Subsequent Development of the Disease beyond the Area of Operation.*—Mrs. H., who had one child eight years old, came to me in June, 1893, from southern Kentucky. She complained of a more or less constant drawing pain about the vulva, some distress on urination, and extreme discomfort at sexual intercourse. Her marital relations had indeed been rendered almost impossible during the last four years. On examination the ostium vaginæ was found somewhat narrower than usual. A number of extremely painful carunculæ were found just within the orifice of the vagina. To touch one of these with a probe would elicit complaints of pain and spasmodic contraction of the vagina and of the vulval and perineal muscles. This circumstance prompted me to look upon the vulval contraction as spastic and of reflex character, depending upon the carunculæ as the exciting cause. I accordingly advised excision of the latter. This was done at my hospital the day after her admission, in the presence and with the assistance of Dr. Johnston and Dr. Pottenger. An ellipse of tissue was removed from either side of the vagina, just within the ostium, extending from the meatus urinarius to almost the median line of the posterior vaginal wall, and each one wide enough to embrace the carunculæ, all of which were arranged in a line around the vagina, just at its outlet. The wounds, one upon either side, were closed by interrupted sutures, and the patient made an excellent recovery, leaving the hospital two weeks later. At the time of her dismissal there was not the sign of a remaining caruncle, and the tenderness referred to them had quite disappeared.

On resuming her marital relations, however, she discovered that the introitus was yet unyielding, and that intercourse was accomplished with but little more satisfaction than formerly. She returned to me the following December. Examination then revealed the fact that the vulval contraction was not spastic but atrophic, and that the disease had made decided progress during her absence. There was absorption of the natural pigment and there was marked disappearance of the normal elasticity of the skin. The vulval orifice was greatly constricted. The nymphæ had shrunken considerably, but the most marked change was about the fourchette, which had shrunken until its margin was less than half an inch from the meatus urinarius. The true character of the case was now declared, although the limitations of the atrophic area had not yet become clearly outlined, as sometimes occurs in this disease. As soon as this takes place I shall urge the curative operation, the most satisfactory results of which were realized in the next case.

CASE III. *Kraurosis Vulvæ of Ten Years' Development; Excision of Atrophic Area; Recovery.*—Mrs. X., married; never conceived. She was referred to me by Dr. Dulaney in 1894. She had submitted to abdominal section twice—once for the removal of uterine appendages and once for the relief of adhesions—both times at the hands of a distinguished local surgeon. She had also been operated upon for hæmorrhoids, with which she was yet afflicted. Sexual relation had been impossible for ten years, during all of which time she had complained of a drawing, pinching, burning pain in the vulva, but no itching. On examination, the vulval orifice was found to be extremely narrow. The nymphæ could be traced only by lines of fusion with the labia majora, and the integument covering them was almost destitute of pigment, and had a glossy, varnish-like appearance. The same state of integument existed on the fourchette, which had so thoroughly lost its elasticity that it was ruptured superficially by an attempt to introduce my finger into the vagina, but it was observed that the fissure

* *Ztschr. f. Geburtsh. u. Gynäk.*, Stuttgart, vol. xix, pp. 283-296.

† *Centrlbl. f. Gynäk.*, 1894, No. 13, pp. 309-313.

thus caused did not bleed. A row of deep carunculæ entirely encircled the ostium vaginae just at the beginning of the vaginal mucous membrane. This patient entered my hospital, and was operated upon the next day in the presence of Dr. Dulaney and my assistants.

The operation consisted in making an incision through the integument just beyond the outer margin of the affected area and extending from one side around to the other, and another incision beginning at the same point, but extending into the vagina just within the carunculæ and terminating on the opposite side at the end of the first incision. The intervening integument was then removed and the cut surfaces approximated by interrupted sutures. It was noticed in making this incision and on removing the diseased skin that there was a great dearth, practically an absence, of connective tissue beneath, and that the muscular tissue was to be observed on either side of the vulva. The result was union by first intention. In two weeks the patient stated that she had become unconscious of the vulva. Three weeks later I introduced two fingers into the vagina quite painlessly. The specimen removed from this case comprises the basis of investigations by Dr. Bettman already quoted.

CASE IV. *Kraurosis Vulvæ complicated with Elytritis Adhæsiva; no Operation upon the Former; Case yet under Observation.*—Mrs. S., of Montgomery County, Ohio, aged fifty-two years, married, but had never conceived, was sent to me by Dr. R. D. Huggins, of West Alexandria. She had elytritis adhæsiva, a strong band having formed between the left wall of the vagina and the cervix. Several other bands constricted the vagina in its upper third. The ostium vaginae was very narrow, admitting the finger only with difficulty and at the expense of great pain. Several patches denuded of epithelium were noticed just within the introitus. The labia minora were fused with the larger lips. The skin covering the vaginal half of the perinæum and the inner margins of the lips was glistening and inelastic, and contained several fissures, giving it the appearance of ichthyosis. There had been but little itching, and that had been experienced in the early history of the case.

I operated on the intravaginal adhesions first, which I was prompted to do because the symptoms referred to it were of the more urgent character, and I did not do both operations at the same time chiefly to avoid having the resulting discharge from above contaminate the field of operation on the vulva, and thus defeat union by first intention. She is yet under observation, and contemplates submitting to operation for the cure of the vulval atrophy at a very early date.

CASE V. *Kraurosis Vulvæ associated with Contractive Diathesis; Operation; Recovery.*—Miss R., aged fifty years, came to me two years ago, complaining of a painful condition about the vulva. She was a well-nourished, very stout woman. By her own confession she had been a confirmed masturbator during nearly all her life. On inspection the condition of the vulva was found to be as follows: There was fusion of the prepuce to the clitoris and the fissure of demarcation between this organ and the labia was practically obliterated by the shrinkage of the skin. The labia minora were indicated only by a line of fusion with the labia majora, except at the upper extremity, where for less than half an inch a separate fold indicated that they yet had a partially distinct existence. The labia majora, which were very fat, were drawn tensely in their inner surfaces by the skin, which was glistening and manifestly shrunken. The pigment had so far disappeared from the skin that the larger capillaries could be distinctly seen through it. Upon the inner aspect of either labium majus there were numerous punctiform ecchymoses. At the introitus distinct areas could be observed evidently denuded of epithelium, being

very red and very painful. The orifice of the vagina was very narrow indeed, hardly admitting the little finger. The patient complained of an intense sense of drawing in all parts of the floor of the pelvis. The flexor muscles of the thigh were always tense. In view of her history and the fact that the contractions complained of began in the vulvo-perineal region, where they were yet more distressing than elsewhere, I was disposed to look upon the muscular condition as reflex and the condition about the labia majora as a dermatitis due to mechanical irritation. As she was yet experiencing erotic sensations of an aberrant sort about the clitoris, and was, in consequence, engaging in solitary indulgences, I concluded that this was the center of irritation, and accordingly excised the atrophic area from the vestibule to the mons Veneris, incidentally doing a complete clitoridectomy. After her recovery from this operation she experienced less pain in the region operated upon, but, contrary to my expectation, the irritation on the inner aspect of the labia persisted and the tendency to contracture did not abate. I then had Dr. Hoppe see the case with me. It was his opinion that so far as the muscular contracture and the tendency to the same were concerned the essential lesion was in the motor centers, and that although the case had a large hysterical element, it would probably be progressive. The subsequent course of the case has justified both the diagnosis and prognosis just recorded. The contractures are now complained of not only in the floor of the pelvis and in the thighs but in the neck and arms.

CASE VI. *Kraurosis Vulvæ following Extirpation of the Uterine Appendages and associated with Marginal Urethral Caruncle.*—Mrs. L., aged thirty-eight years, widow, English, gave birth to a child at seven months' utero-gestation some years ago. She was taken by her husband, who was a physician, to consult Sir Spencer Wells, Mr. Lawson Tait, and other distinguished surgeons relative to pain in the pelvis. She was advised to submit to extirpation of the appendages, but afterward conceived. With a nervous system seriously shattered from reverses, she came to America in the capacity of a nurse and has rendered conspicuous service in a number of our leading hospitals. In 1892 she submitted to an abdominal section for removal of the uterine appendages in a hospital in Maryland, from which she convalesced very slowly. She finally came into the hands of my friend Professor Reamy, suffering from serious symptoms of adhesions about the bladder and was kindly referred by him to me for operation. A secondary abdominal section was accordingly done at my hospital, November, 1893, in the presence of Professor Reamy and my assistants. This feature of the case, while very interesting (and will be utilized as the basis of a report upon another subject) is only alluded to in this connection because of its possible ætiological significance. An additional detail, which I wish to mention for the same reason, consists in the fact that the abdominal scar in both the primary and secondary operations underwent marked hypertrophy. The first operation, according to the patient's own statement, was followed by pus in the wound; the second closure, however, was absolutely by first intention. Another feature of importance was that during convalescence, and quite three weeks after operation, she suddenly had a rise of temperature, which upon two occasions sent the mercury to the top of the thermometer (112° F.), although a temperature of 105° to 108° was not infrequent. These exacerbations were very brief, lasting for less than half an hour, and were confirmed by a thermometer in each axilla and in the mouth. These trophic and thermic eccentricities are mentioned only to show the distinctly neurotic type of the patient. After her convalescence from her second abdominal section she called my attention to a very painful condition of the urethra and vulva. Upon inspection I

found marked cutaneous atrophy of the latter, with a caruncle at the mouth of the former.

This case is one in which the history of the cutaneous vulval changes post-dates the first abdominal section and at once raises the question as to the causal significance of the removal of the uterine appendages with the accompanying disturbance of the nerve supply to the remaining genital organs. This question has been raised by other writers, recently by Olshausen; but for my own part, and in view of the fact that the vulva gets its supply of nerves from the superficial branches of the internal pudics and from the branches of the lesser sciatic, nerves which are not disturbed by the excision of the uterine appendages, I can not see that the question has any serious basis of probability. It is true that trophic changes are presided over by branches of the sympathetic, but no known distribution of the nerves of that system can enable me to understand how the removal of the appendages can interfere with the vasomotor or trophic supply to the pudendum.

Knowledge relative to progressive cutaneous atrophy of the vulva is too nebulous to justify final conclusions. That which seems to be conclusively demonstrated may be summarized as follows—viz.:

1. Progressive cutaneous atrophy of the vulva (kraurosis vulvæ) is a distinct disease.
2. It is of very rare occurrence.
3. It is essentially inflammatory in character, differing from other inflammations of the skin in the marked progressive atrophy which succeeds the stage of hyperæmia and infiltration.
4. It is limited in its manifestations to the vulva.
5. It is manifestly not of syphilitic origin.
6. Its ætiology is so obscure as to suggest a primary causal lesion in the trophic-nerve supply to the vulva.
7. Affected areas may be successfully excised.

A NEW VAGINAL DOUCHE WITH AUTOMATIC OUTFLOW.

BY NATHAN G. BOZEMAN, PH. B., M. D.,
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AND ST. MARY'S HOSPITAL, HOBOKEN.

It has been my endeavor for several years to perfect a system of vaginal douching which can be applied conveniently and without the douche pan. The object which I have in view is to flush the vagina with a small quantity of hot water and evacuate before it flows over the perinæum. The patient's clothing and the bedding are thus protected from moisture and it enables me to use the water at 130° F.—hotter than is tolerated by the skin but comfortably borne by the vaginal mucous membrane, after slight cooling in passing through the apparatus. Protracted douching of this kind I have found relieves pelvic pain and promotes absorption of plastic exudates about the uterus, ovaries, and tubes. It also dilutes the urine and washes the vesical mucous membrane when there is a vesico-vaginal fistula, made for physiological rest of the bladder for the cure of cystitis and ureteritis.

The apparatus which I have devised and used to my entire satisfaction is well represented in the cut. It differs from the air and water irrigator and drain only in the form of the reservoir (see the *New York Medical Journal*, June 1, 1889, and May 27, 1893). Here a soft rubber bag is employed and the outflow is not constant; it is four ounces per minute at the beginning and it gradually diminishes. The bag holds two quarts of water which runs out in twenty minutes. The apparatus commends itself for its compactness, and it certainly minimizes the quantity of hot water required for a protracted douche, which is a great comfort to patients who have not the advantages of a home or hospital appointments.

When in use the bag is suspended by the side of the bed, three feet from the floor, directly over some form of receptacle; the perforated loop of soft rubber tubing is compressed when introduced into the vagina. On opening the stopcock the upper or inflow tube is clamped for a few seconds while the outflow tube is being exhausted of air; when it is released a continuous flow of air and water takes place into the vagina; the water accumulates there to the level of the uppermost perforations in the bent tube and is then carried off into the vessel on the floor. If it is necessary to continue the douche longer than twenty minutes a pitcher of hot water is placed near at hand, so that the patient can herself replenish the douche bag without rising, when it becomes empty.

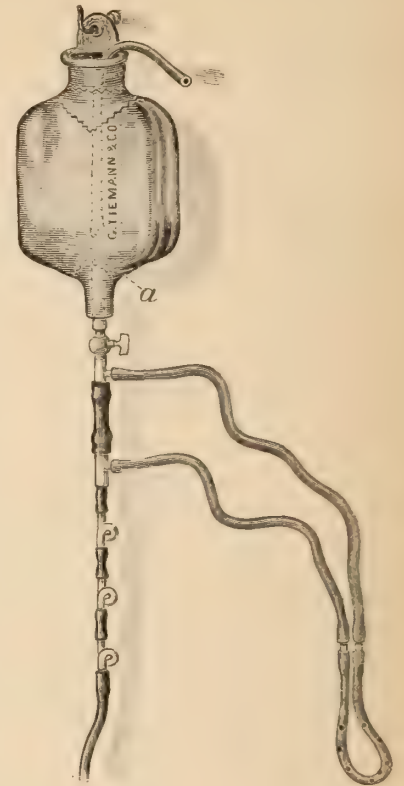
9 WEST THIRTY-FIRST STREET.

THE GRAVITY OF HYSTERIA.*

BY GUSTAVUS ELIOT, A. M., M. D.,
NEW HAVEN, CONN.

Few diseases of the nervous system come under the care of the general practitioner more frequently than hysteria. Few diseases are commonly regarded as more trivial. The immortal Watson, in his lectures more than half a century ago, said: "Hysteria, though it is sufficiently distressing, is attended in nine hundred and ninety-nine cases out

* Read before the Connecticut Medical Society, at the one hundred and second annual meeting, in New Haven, May 24, 1894.



of a thousand with no ultimate peril either to mind or body."

To underestimate the importance of the disease with which a patient is suffering is always exceedingly discreditable to the physician; it is also generally very unfortunate for the patient. It will therefore be profitable to consider briefly whether hysteria has not in the past been regarded too lightly; whether there are not certain features of gravity connected with the disease which have sometimes been overlooked; and also whether the disease has not, since the time of Sir Thomas Watson, acquired new features of gravity.

The more common manifestations of hysteria are usually easily controlled and quickly disappear. The ease with which, in many cases, harsh and unexpected measures restore the patient to an apparently normal condition seems to justify the common estimate of the disease. Unfortunately, however, hysteria shares the fate of most common diseases of not being well understood—in fact, in many cases of being positively misunderstood.

The facts that practically nothing of importance is known in regard to the pathology of the disease, that its clinical manifestations are often transient, and that they often disappear rapidly under the use of remedial measures which are of little value in other affections, place it apart from other diseases, and explain why it is not strange that it has received so little serious consideration.

In public clinics, in hospitals, prisons, and almshouses, cases of extraordinary character have within comparatively recent years been carefully studied by Charcot, Weir Mitchell, Mills, and many younger neurologists. These cases have served a useful purpose in calling attention to the existence of more serious forms of the disease than had hitherto been generally recognized, although an unfortunate nomenclature has done much to develop erroneous ideas in regard to the real nature of these cases. The name hysterio-epilepsy has led many to believe that in these cases there is a genuine epileptic element which does not really exist in them. Fortunately, the more striking forms of the disease, which have been made the subject of clinical memoirs, are exceedingly rare in private practice in Connecticut.

There are, however, certain phases of the disease in its less severe forms which, while their existence is promptly recognized when they are described by some one else, are, nevertheless, not kept constantly in mind when the physician is engaged in making his daily or more infrequent visits among his neurotic patients.

When your rough-and-ready doctor, who prides himself on the possession of a great deal of horse sense and very little scientific knowledge, meets with a case of simple hysterical convulsions in a young girl, and restores the normal motor equilibrium by dashing water in her face, the onlookers wonder at the startling effect of so simple a remedy, and straightway conclude that the trouble did not amount to much. They are ready to exclaim, "Oh! that was nothing but hysterics," and at once banish all sympathy for the unfortunate patient. The doctor chuckles to himself and admires his own acumen and skill.

If one were to see a patient during and immediately

after such an attack of the ordinary type, he might consider it an insignificant affair. If the patient is never seen again, of course there is no reason for thinking differently. But it must be remembered that an attack of this kind is an evidence of an instability of the nervous system; that, after such a disturbance of the stability of the nervous system has occurred once, it is likely to occur again; that repetitions of these attacks cause a gradually increasing weakness of the nervous system, which may result in prolonged or permanent attacks of chronic invalidism; and that a series of these simple hysterical convulsions may be but the forerunner of serious disturbances of the nervous system in later years. The hysterical girl may become a neurasthenic, a neuralgic, or a melancholic woman.

This is one phase of the disease which may fairly be considered as grave. Facts of this kind should be borne in mind by every physician who is called to treat hysterical patients, and measures should be employed to prevent such unfortunate occurrences.

But the individual patient is not alone to be considered. The hysterical woman frequently marries and has children. It has long been well recognized that morbid conditions and tendencies of the nervous system are transmitted from parents to children and grandchildren. The conditions of nervous instability observed in the various neuroses are with especial frequency thus transmitted. Epilepsy, neurasthenia, neuralgia, and insanity are often traced back to an hysterical ancestry. From this point of view surely hysteria must be regarded as an affection of gravity.

The foregoing suggestions have had reference to the remote results of the disease. Some of the cases which immediately exhibit a serious aspect have already been mentioned. There is another class of cases which have not been so carefully described and which are not so easily recognized, but which are deserving of especial attention from the general practitioner. These are cases which are not clear in their manifestations, which consequently are not easily distinguished from other diseases, and in which inadequate treatment may be followed by disastrous results. In many of these cases men of intelligence might differ in opinion in regard to the real nature of the affection. These cases are frequently mistaken for cases of organic disease of the nervous system. It is true that this view has not been often confirmed by pathological observations. When a case with obscure nervous symptoms begins to assume a serious aspect, the physician is apt to say that the patient has brain fever, or meningitis, or cerebro spinal meningitis. If the patient dies, the friends rarely have curiosity enough to have a post-mortem examination of the central nervous system. If such examinations were made more frequently, it is exceedingly probable that in some instances there would be discovered an absence of the pathological changes which characterize these more commonly fatal diseases.

It also seems to be generally believed that patients do not die of hysteria. If a patient who has been supposed to be suffering with hysteria dies, or becomes so critically ill that a fatal result seems probable, it is generally regarded as good evidence that the disease is something more than hysteria. This is a mistake. Sometimes a patient

does die of hysteria. The general recognition of this fact will lead to the saving of the lives of some patients who would die if they were considered and treated as being victims of organic brain disease.

Another reason why mistakes are made in treating this disease is that some very good practitioners, who are careful enough to use a thermometer in the examination of their patients, do not recognize the fact that patients with hysteria may have pyrexia, and that consequently the presence of fever does not necessarily indicate the existence of organic disease.

When the medical profession rejects these two fallacies and comes to recognize that patients with hysteria may have fever due to that disease, or that they may die as a result of that disease, its diagnosis will be considered in a more rational manner. These facts furnish an additional reason for regarding hysteria as an affection of considerable gravity.

With the more general development of intelligence and refinement, accompanied as it is with an increase in the prevalence of functional diseases of the nervous system, it is necessary for physicians to improve their methods of treating these disorders. The coarse and often brutal measures of bygone years must be superseded by other not less efficient but more elegant remedial measures. It will be found unwise to destroy entirely the sympathy of the patient's friends. It is exceedingly unfortunate for the other members of the family to get the idea that the hysterical patient is herself entirely to blame for her condition. Although, to a certain degree, this may be the fact, yet such a statement does not embrace the entire truth.

Still more unwise is it for the physician himself to betray any lack of sympathy. His manner, of course, should not be weak and vacillating, but, on the contrary, while avoiding anything bearing the appearance of unnecessary harshness, he should be kind yet firm; he should insist that his directions be minutely carried out; he should inspire hope, and by every word and action should bring encouragement to his weak and unfortunate patients.

In conclusion, it must never be forgotten that:

1. Hysterical manifestations indicate an abnormal condition of the nervous system.
2. This condition will be aggravated if the patient is not properly treated.
3. Prolonged or frequently repeated attacks may inflict serious and permanent damage upon the nervous system of the patient.
4. As a consequence, a tendency to functional disorders of the nervous system may be transmitted to the children and grandchildren of the patient.
5. Serious symptoms and even death may be caused by hysteria.

Pasteurism in Vienna.—Antirabic inoculations, according to M. Pasteur's method, are now, we are informed, carried out in the Rudolph-Stiftung Hospital in Vienna. The inoculations are performed daily between 10 and 11 A. M. They are at present entirely free, but we gather that a scale of charges is under consideration. The inoculation service is under the direction of Professor Paltauf.—*British Medical Journal*.

NUCLEINS—A CLINICAL STUDY.

By JOHN AULDE, M.D.,

PHILADELPHIA.

INTRODUCTION.—The history of the study of nucleins extends over a period of more than sixty years, running back to the time of Braconnot (1831); but it is only within recent times that any systematic attempts have been made to determine their chemical and physiological properties with a view to their employment in the domain of practical therapeutics. The object of the present paper is to present a concise epitome of the subject, referring briefly to the more important questions likely to occur to the general practitioner relating to the source and method of preparation, physiological properties, therapeutic range, with clinical indications for their employment.

SOURCE AND PREPARATION.—*Scientifically*, nuclein is described as a phosphorized proteid, the phosphorus existing in the form of nucleinic acid, combined with a highly complex basic substance. This basic substance yields as decomposition products one or more of the so-called xanthine bodies, adenin, guanin, sarkin, and xanthin. The available sources are as follows: Yeast-cells, yolk of egg, the spleen, the blood, the testicles, the bone marrow, the brain substance, and the thyreoid and thymus glands.

Historically, nucleins have been studied by Braconnot (1831), Quevene (1838), Schlossberger (1834), Miescher (1845), Bechamp (1865), and later by Hoppe-Seyler, Lubavin, von Jaksch, and Plösz. In 1879 Kossel demonstrated that they possessed germicidal properties, and ten years later they received attention at the hands of Altmann. Liebermann prepared an artificial nuclein from albumin and metaphosphoric acid, and here should also be mentioned the names of Geohegan, Malfatti, Horbaczewski, and finally, in 1893, Vaughan, of America, Althaus, of England, and Germain Sée, of France.*

* The appended references to contributions by the writer may be of some interest to those who wish to investigate further the clinical researches on this subject:

Nuclein Therapy. *American Therapist*, December, 1893.

The Principle involved in the Subcutaneous Use of Blood Serum. *Loc. cit.*, January, 1894.

Clinical Observations on Nuclein Solutions. *Loc. cit.*, February, 1894.

Thrashing over Old Straw. *Loc. cit.*, February, 1894.

A Note on the Employment of Nuclein Solution. *New York Medical Journal*, March 24, 1894.

The Treatment of Diarrhoeal Disease. *Transactions of the Medical Society of the State of Pennsylvania*, 1894 (*American Therapist*, May, 1894).

Organic Extracts. *American Therapist*, July, 1894.

Nuclein—What is It? *Medical Summary*, July, 1894.

A Modern Idea in Scientific Medicine. *Medical Record*, August 11, 1894.

Autumnal Catarrh. *American Therapist*, August, 1894.

Professor Vaughan has published the following papers:

The Principles of Immunity and Cure in Infectious Diseases. *American Therapist*, September, 1893 (*Transactions of the First Pan-American Congress*, Washington, D. C., 1893).

The Nature of the Germicidal Constituent of Blood Serum. *Medical News*, December 23, 1893 (read by title, First Pan-American Medical Congress, Washington, D. C., 1893).

The Nucleins and Nuclein Therapy. *Journal of the American Medi-*

Yeast nuclein, according to Vaughan, is prepared as follows: Brewer's yeast is extracted with dilute alkali and filtered, and the filtrate precipitated with dilute hydrochloric acid. The precipitate is redissolved in alkali and reprecipitated with acid several times, and is finally dissolved in 0.25 per cent. of potassium hydrate.

Testicular nuclein is prepared by means of artificial digestion, after a preliminary maceration and extraction with a mixture of equal volumes of absolute alcohol and ether. The testicular substance is then digested for some days with pepsin and 0.2-per-cent. hydrochloric acid, the undigested portion being collected on a filter paper and worked, first, with 0.2-per-cent. hydrochloric acid, then with alcohol. The final step consists in dissolving the precipitate in a 0.5-per-cent. solution of potassium hydrate and filtering through a Chamberlain filter without pressure.

Nuclein solutions are also prepared from the blood, the spleen, the bone marrow, the brain, and the thyroid and thymus glands in the same manner as described for the preparation of testicular nuclein; but, as all these solutions obtained in this way from animal sources contain a small percentage of albumin, this fact must be taken into consideration when using the product hypodermically. There is also danger of sloughing, owing to the presence of the alkali, when large doses are administered in this manner. Through the courtesy of a competent chemist I have been able to conduct my later experiments with solutions absolutely free from albumin or excess of alkali, which give rise to no untoward effects either hypodermically or when introduced into the system by way of the stomach. After a careful survey of the current literature, together with an extended series of clinical tests, the conclusion was reached that the thyroid and thymus glands offered the most valuable and at the same time the most available source for obtaining this product, and, with some important modifications of Vaughan's process, a permanent and non-irritant solution of definite strength could be depended upon. Investigations are still in progress, and it is probable that a slightly modified product, a trifle less effective therapeutically, will in the end be found which can be prepared at a nominal expense.

PHYSIOLOGICAL PROPERTIES.—Naturally, in studying the physiological properties of any remedy, we must consider the effect which results from its presence in the organism—*i. e.*, when brought into contact with the tissues; but it is not sufficient for the present demands of science simply to assert that a drug "stimulates," or acts as a "sedative," unless we are prepared to offer some rational and satisfactory explanation of the mode by which such stimulation or sedation is produced. In the case of nuclein, for example, it is now well known that this is the name applied to a product more or less constantly manufactured by certain leucocytes (the multinuclear white blood-corpuscles), and, being distributed throughout the tissues by means of the

lymph and blood vascular systems, a normal functional activity is maintained in the protoplasm. Now, poisonous substances produce stimulation of the protoplasm through the irritation set up, and, if long continued, this irritability is exhausted, when sedation follows; but it seems that Nature's laboratory is adapted to the production of a protoplasmic stimulant, possessing all the properties of an antiseptic which is non-irritant, and when, through faulty metabolism, leucocytosis is defective, nuclein can be artificially supplied.

It will not be out of place here to consider the methods of Nature in resisting the inroads or progress of disease, or the aim of physiological medication in the attempt to produce artificial immunity. Taking diphtheria as an illustration, the question may be asked, Why does not the disease persist so long as life continues? The answer to this will be, that the conservative processes of the human economy are sufficient, along with suitable medication, to arrest its progress; but this explanation, from a scientific standpoint, is utterly worthless, although it has done duty and has been repeated indefinitely for generations. How shall we explain the effects of physiological antagonism by inoculation with solutions prepared from pure cultures of the pathogenic micro-organism? In this category would also fall the method of preventing cholera, pneumonia, hydrophobia, tetanus, and the arrest and cure of certain forms of cancerous affections by means of pure cultures of the bacteria associated with the respective disorders. The following outline would seem to be a more appropriate and withal a scientific elucidation of this most perplexing problem: The vitality of the animal organism depends upon the integrity and normal functional activity of the cells. Derangement of the various organs is always the result of functional or organic perturbation of the cell life or cell activity, and upon this well-known fact rests the modern doctrine of cellular therapy. All, or nearly all, remedial agents are exhibited with a view to modify, to increase, or diminish cellular activity, so that cellular therapy is but a new name used to designate a method which has universally prevailed since the dawn of medical history. The scientific search-light has but revealed its existence, while the bacterial torch enables us to fix its position.

Now, these cells, which make up the different organs and structures, are themselves composed of cells—protoplasmic cells—and it is necessary, therefore, in order to modify their functional activity, that the protoplasm should be influenced, this being effected through the medium of the blood and intercellular fluids. Thus, the protoplasm is constantly bathed in fluids containing nutritive pabulum (and oxygen), which is taken up, and it gives off in return carbonic acid and other waste products. The protoplasm likewise possesses the power to convert oxygen into ozone, which is also a powerful antiseptic and deodorant.

Continuing this line of inquiry, we find that the power to resist or withstand disease is now attributed to "defensive proteids," and recent investigations clearly point to nuclein as one of the most effective proteids, if not the principal one, embraced in this modern physiological complex. Physiological investigation shows that nuclein possesses

cal Association, June 9, 1894 (Transactions of the Illinois State Medical Society, 1894).

Professor Chittenden has also published a paper bearing upon this subject (*Nuclein and its Relationship to Uric Acid*), *Dietetic and Hygienic Gazette*, February, 1894.

distinct antiseptic properties, and clinical observation has repeatedly demonstrated its therapeutic virtues in a long list of hitherto vexatious and intractable diseases. These results, according to my interpretation of physiological processes, are due to the influence of nuclein upon the protoplasmic cells; hence the term cellular therapy, nuclein therapy being an important subdivision.

During the progress of disease, more especially disease characterized by active inflammation, when nutrition is fairly maintained, the polynuclear white blood-corpuscles rapidly increase in number (inflammatory leucocytosis), and it is believed that at this stage they manufacture or produce nuclein in much larger quantity than under normal requirements. The nuclein in solution is thus brought into direct contact with the protoplasmic cells, and as a consequence their ability to resist disease, or rather, we should say, bacteria and their products, is measurably increased, not to mention the influence which is exerted directly by the presence in the blood and intercellular fluids of such a powerful antiseptic.

We have here, then, a lucid and at the same time rational explanation of the *vis medicatrix naturæ*, as demonstrated by physiological experimentation and confirmed by clinical observation. Health is maintained and resistance to disease effected mainly through the influence of nuclein as the most active of the so-called "defensive proteids."

It is now a well-recognized fact in physiology that in confirmed drunkards the effect of alcohol on the protoplasmic cells can be demonstrated—alcoholized protoplasm—and experiments now under way give promise that we shall be able shortly to estimate in like manner the effect of long-continued opium addiction—morphinized protoplasm—all going to show that the protoplasm may be subjected to what might be termed an educational process. Such a process, we are warranted in assuming, takes place during the progress of disease, the protoplasmic cells in time becoming immune against infection.

The foregoing appears to cover the main points involved when replying to the question relating to the persistence of disease, while it affords a scientific explanation of the conservative processes of Nature, although there are still remaining many important details which can be filled in by the intelligent and thoughtful physician.

THERAPEUTIC RANGE.—The therapeutic range of nuclein will manifestly be determined by studying its proper physiological rôle in the economy, bearing in mind that it possesses a twofold action—upon the blood and upon the nervous system. Wherever Nature provides for the elimination of poisons or waste products of any description, there shall we find nuclein. Were it not for the antiseptic properties of nuclein, as it is poured into the stomach and intestine in combination with the normal secretions, what would be the condition of the alimentary tract at the end of twenty-four hours? Had not a wise provision been made for the protection of the mucous membrane of the pulmonary structures and upper air-passages, how long would it be until decomposition would supplant normal elimination? And the same train of thought applies with equal force to the skin, the kidneys, and the entire glandu-

lar system. The condition of affairs may be compared with an island, or even a large country, traversed by a complete system of railroads and provided with telegraph lines—diverging, intersecting, connecting—with public and private roads extending in every direction, all under one central management. In the case of war, famine, or pestilence, which may be likened to disease, the whole commercial mechanism of the country is manipulated with the sole object of relieving the local distress, and, like the little blood-corpuscles in disease, every inhabitant exerts his individual effort to the best of his ability in the hope of being able to contribute something toward restoring normal conditions.

We have in the recent strikes a modern instance of physiological concentration in the arrest of disease, as contrasted with the ancient *régime* which advocated counter-irritation. Had the authorities at the time of the Chicago riots undertaken to quell the disturbance by a show of fighting a thousand miles away, anarchy might still be present with us; but by distributing soldiers and concentrating a police force at the points of rebellion, the vicious element was subdued and order re-established. Just so it is in disease; Nature contrives to afford protection by means of the defensive proteids. We have an appropriate illustration of this in the case of boils, carbuncles, and abscesses. The same holds good also in the case of intestinal troubles—diarrhœa, dysentery, peritonitis, and typhoid fever; and the principle extends to pulmonary and bronchial affections, shown by the increased secretion, where Nature attempts to correct defects by additional work.

Taking a comprehensive survey of the subject in hand, we should assume that the exhibition of nuclein would be useful, first, in the treatment of all forms of anæmia, where nutrition is below par and digestion so impaired that insufficient pabulum is supplied to the white blood-corpuscles. By enriching the blood through the artificial supply of nuclein, the normal functions of elimination are improved and leucocytosis restored. Malaria, especially of the chronic or recurrent type, is promptly and favorably modified by the exhibition of nuclein. In both diseases the effect of medication can be demonstrated from time to time by an examination of the blood. In digestive disorders, whether occurring alone, associated with or dependent upon other disease, whether affecting the stomach or intestinal tract, nuclein solutions are most efficacious. Pulmonary disease, tuberculosis, pleurisy, pneumonia, and pleuro-pneumonia and bronchial affections generally respond promptly to nuclein medication; but a caution should be added to the effect that too much must not be expected of nucleins, presently to be more fully elaborated. In diseases of the skin arising from imperfect elimination or suboxidation, the administration of nuclein is attended with the most gratifying results; and it is even serviceable in correcting cutaneous lesions due to specific infection, doubtless owing to the improved character of the insensible transpiration. Derangements of the renal functions are perceptibly improved by nuclein. In a marked case of albuminuria, the urine was increased, the percentage of albumin lessened, œdema of the extremities and abdominal distention diminished, and

there occurred a decided improvement in the digestive function. The effect of nuclein upon the kidneys during the progress of disease elsewhere is not especially marked, the urinary flow being slightly increased, but the general character of the water is distinctly improved.

From the preceding remarks, the effect of nuclein upon the nervous system will be inferred. When disordered innervation results from faulty assimilation or defective elimination, its beneficial influence becomes quickly apparent, but its virtues are particularly noticeable when the history of the disease enables us to designate some local ailment or derangement as the exciting cause for the persistence of the malady. Thus, in females, menstrual irregularities may be responsible for a mild form of melancholia, which promptly subsides upon re-establishment of a more active tissue metabolism. In men, immoderate coffee-drinking not infrequently paves the way for subsequent cerebral disturbances. Upon removal of the cause the hepatic functions regain their vitality, and with the addition of nuclein elimination at distant points is favored.

The stimulant effect upon the cerebral functions can easily be demonstrated; taken at a time when the vital powers are depressed and the physical system exhausted from overwork, a few doses, often a single dose, creates a feeling of mental buoyancy; the step becomes firm and elastic and ambition supplants languor. This property has frequently attracted attention in the aged and in those suffering from chronic maladies.

The foregoing recapitulation embraces substantially the groundwork of nuclein therapy from the standpoint of the clinician; but in order to give the present article a practical turn it will be advisable to enter somewhat into detail respecting several of the more prevalent maladies common to this latitude.

CLINICAL INDICATIONS.—Anæmia.—Anæmia is essentially a wasting disease, the nutrition of the blood being impaired by the presence of waste products and other poisonous elements remaining in the system. Persons thus affected suffer from headache, neuralgia, various forms of catarrh, fugitive rheumatic pains, lack of appetite, sleeplessness, and constipation. The facial expression is indicative of weariness, the gait is slow and unsteady instead of being elastic and firm, while mental hebetude is often most pronounced. This condition is liable to appear in both young and old in every station of life, but it is more particularly noticeable in young girls and those who have had malaria or some lingering disease. It is frequently marked as the sequela of acute diseases, convalescence being tardy owing to faulty assimilation.

An examination of the blood shows that the red corpuscles are in an unhealthy condition, and, as a consequence, are unable to carry oxygen to the tissues; hence, combustion is lessened, the vitality of the system reduced, and the patient becomes susceptible to other diseases—pleurisy, pneumonia, pleuro-pneumonia, bronchitis, and rheumatism in winter, and the usual bowel troubles, typhoid fever, subacute and chronic catarrh in summer and autumn. To remove these irritants and restore the function of the little red blood-globules, of which there are

about two hundred trillions in the human body, is a work of no small magnitude, and heretofore has required much time, patience, and skill on the part of the physician; but with the exhibition of nuclein, suitable diet, and proper hygiene, a favorable impression is produced at once, and the patient gains perceptibly from day to day. Nuclein, however, is not strictly curative without these adjuvants, but it paves the way, setting the patient on his feet as it were, and does not preclude the use of other approved medicaments. An examination of the blood under the microscope discovers the true condition, and enables the physician to determine progress from time to time.

Malarial Disease.—This disease is better understood than in former years, since it has now been repeatedly demonstrated that a vegetable micro-organism is present in the blood. Under the microscope the influence of this parasite upon the red blood-corpuscles can be studied, and with its disappearance the disease subsides. The presence of nuclein in the blood and intercellular fluids appears to have a demoralizing effect upon the micro-organism and stimulates the blood and tissues to discharge an unwelcome guest, a few days only being required to produce a favorable change in the condition of the patient. The suggestion is thrown out here that possibly this effect is due more to the stimulation of the leucocytes (leucocytosis) than to the direct action of the substance upon either the blood or the parasite; but at any rate the transformation is effected without the least disagreeable symptom or untoward effect such as characterizes the treatment by quinine. Chronic cases, and those which show a disposition to return spring and autumn (recurrent malarial disease), are readily controlled by nuclein, improvement being observed within a few days; the languid feeling disappears, appetite returns, the bowels become regular, pain over the liver and in the back vanishes, the muddy, sallow, and greasy appearance of the skin clears up, and physical and mental activity no longer seem burdensome. Rarely will it be necessary to exhibit other medicines for the relief of this troublesome affection, except for the purpose of supplying the system with certain elementary substances that it has failed to secure because of long-continued malassimilation.

Bronchial Affections.—In the case of bronchial affections, subacute and chronic, nuclein shows its sterling value as a remedial agent. The health of most persons thus affected is a trifle below par, and as a consequence the mucous membrane lining the tubes is called upon to perform vicariously the function of elimination. Hitherto, treatment has consisted in the exhibition of remedies calculated to *increase* secretion, while the wise physician should aim to *lessen* secretion, endeavoring at the same time to increase the activity of elimination at other points, thus reducing the output through the bronchial tubes, and this purpose nuclein most satisfactorily accomplishes. It regularly and persistently augments the functional activity of the skin, the kidneys, the liver, and produces a favorable action upon the bowels, probably through increased cellular activity, both systemic and locally at the points of elimination. As a result, cough subsides, expectoration ceases, the appetite improves, and the patient gains strength, be-

cause, through this increased cellular activity, the normal functions are restored by a process which is in harmony with Nature's methods and in conformity with her laws.

Humid asthma and nearly all forms of *autumnal catarrh* are amenable to treatment by nuclein solutions; but in many of these cases, owing to the debilitated condition of the muscular system, it will be advisable to combine with its administration the use of strychnine in some form, preferably small doses of the arsenite.

Influenza.—My experience with nuclein solutions in combating influenzal complications during the past two winters has been remarkably favorable—so much so that in mild cases no other remedy has been employed, except for the control of special symptoms, such as accelerated pulse, headache, and other neuralgic pains. In convalescence from this disease, with the addition of small doses of strychnine arsenite (one one-hundredth of a grain every two hours), recovery is remarkably prompt and apparently complete; cough and expectoration subside, strength is regained, appetite restored, and the patient is up and about within a few days after the acute stage has passed. There is no pronounced weakness, no lingering debility, and no demand for continued medication.

Pulmonary Diseases.—In the treatment of pneumonia, pleuro-pneumonia, pleurisy, and tuberculosis, the beneficial action of this remedy is sufficiently marked to be worthy of mention, although it is not advocated as a curative agent. In pneumonia, for example, when the circulation is under control, in the absence of hyperthermia, when elimination by the natural channels is arrested—shown by the embarrassed respiration and cardiac debility—solutions of nuclein can be depended upon to rekindle the dying flame by contributing toward the restoration of the normal condition of the blood. Still, there must be some doubt as to whether nuclein actually supplies something that is wanting in these cases; rather it stimulates leucocytosis, thus augmenting the antiseptic properties of this fluid. The same is true of its action in the treatment of pleurisy.

In tuberculosis it lessens the cough by diminishing expectoration, improves the appetite, regulates the bowels, increases elimination by the skin and kidneys, decreases the frequency of the exacerbations due to extension of the disease, controls in a measure the *night sweats*, and creates a feeling of well-being, while it does not interfere with the administration of other medicaments hitherto so highly prized for their antiseptic properties.

Disorders of Digestion.—In all functional disorders of the digestive system, diet being regulated, the effects are apparent within a few days. It also possesses a high degree of utility in acute attacks, more especially after the initial stage. Nuclein is almost a specific in the treatment of tonsillitis (amygdalitis), follicular and parenchymatous, arising from digestive disturbances superinduced by cold and exposure. Indeed, in every variety of throat trouble its virtues are manifested within a few hours, although relief is less marked in those cases associated with a rheumatic diathesis.

Leucocytosis being defective in typhoid fever, the advantages of nuclein in this disease will at once suggest

themselves, and as an adjuvant to modern antiseptic methods—for its influence upon nutrition—it will eventually occupy a position of no mean significance.

Diphtheria.—In quite a large number of cases where all the symptoms pointed to diphtheria as the true condition I have found nuclein solutions most efficacious, the false membrane, angina, anorexia, and restlessness all disappearing in less than twenty-four hours; and, although some fever remains for a day or two, if seen early in the attack, the most forbidding symptoms promptly yield to this form of medication. Being absolutely tasteless, prompt in its action, and entirely free from objectionable after-effects, children take it readily, frequently asking the nurse if it is "time for the medicine."

ADMINISTRATION.—The administration of nuclein solutions differs in no wise from that of other remedies. The usual dose for an adult is, approximately, one third of a minim of the standard solution adopted, and for convenience and economy it is put in the form of tablets or granules. This dose can be repeated at intervals of from two to four hours; but in acute cases, where the patient is seen late in the day, the dose may be repeated at intervals of an hour for that day. For a child five years of age the dose should be about one third of this quantity, which can be regulated by solution in water.

In the treatment of throat troubles some advantage appears to be gained by allowing the tablet or granule to dissolve in the mouth. Tablets have been prepared for me by Mr. Charles Leedom, a local druggist of this city.

Hypodermically, notably in the case of malaria and anæmia, I have administered much larger doses, usually beginning with five drops and increasing the dose at each visit on alternate days until eight, ten, or twelve drops were given in this manner. In one case of long-continued malaria I exhibited the equivalent of a drachm, not only without untoward effect, but with decided benefit.

There are practically no contraindications, except perhaps perfect health, since, so far as my observations extend, this solution is non-toxic. The only perceptible symptoms which might be regarded as at all unfavorable, and these are inconstant, are slight passive congestion of the pharyngeal structures occasionally, increased flow of urine, and generally the development of sulphureted-hydrogen gas in the intestine; but these defects may be avoided by decreasing the dose.

1411 WALNUT STREET.

Vaccination in Austria.—According to an official report recently published, the number of vaccinations in Austria is increasing steadily, though not in proportion to the growth of the population. In 1891 the ratio was 1 vaccination to 31 inhabitants; in 1892, it was 1 in 29; in 1893, 1 in 32 for the whole of Austria. Taking separate divisions of the country, we find that in 1893 the proportion of vaccinations to population in Lower Austria was 1 in 41; in Upper Austria, 1 in 45; in Vorarlberg, 1 in 77. The animal lymph was almost without exception procured from the Imperial-Royal Vaccine Institute at the expense of the State. In 1891 the proportion of successful vaccinations was 83·7 per cent.; in 1892, 85·1; and in 1893, 90·3.—*British Medical Journal*.

ARSENITE OF COPPER.

By ALIX HRDLICKA, M.D.

It is now over two years that I have been using arsenite of copper in the various inflammations of the mucous membranes, and the almost universal good results obtained from its applications authorize a report.

I dislike to appear as an enthusiast, and I therefore will submit nothing but simple reports of the different cases wherein it was used. Nor will I enter into tedious clinical description, my object being not to formulate rules or demonstrate uncommon successes, but simply to call attention to facts that may be verified and further elucidated.

I have used arsenite of copper in inflammatory derangements of nearly all the mucous membranes of the body, from that of the gastro-intestinal tract to those of the eye, ear, nose, mouth, and pharynx on the one hand, and the urethra, bladder, vagina, and rectum on the other; the results prove to me that it will control alone or accompanied by other remedies and means, when administered in time and in the proper way, most of the acute and non-specific uncomplicated inflammations of these structures. With regard to the time of its administration during the course of the disease, the earlier it is given the better and more rapidly it acts; the manner of its administration is purely topical, and I have found that it served me best in solutions of from 1 to 50 or 100,000. These solutions are easily made by dissolving one of the common $\frac{1}{100}$ -grain pellets in respectively one or two ounces of water, and are applied frequently at intervals seldom longer than an hour (bladder, urethra, and nose), and often not longer than from ten to fifteen minutes.

The general characters of the cases which indicate its use are those of acute and subacute inflammations attended with pain, suffusion, and a more or less watery discharge. It has little action in cases where the discharge is thick and persistent, unless the affected surface is thoroughly cleansed by irrigation or lavage before the solution is applied.

My practice is a general one, and I have not been able to collect in most instances sufficient material in these special branches. I hope most sincerely that this remedy will be given an extended trial, as it seems to deserve it. The following are the cases in which I used it:

1. Two cases of cystitis, one acute and the other subacute. Salol and alkalies were administered at first, but were found insufficient, and arsenite of copper was resorted to. In the first case, one of acute cystitis in a woman following the introduction of a catheter after delivery, recovery set in within ten days. Warm lavage of the bladder with a 1 to 50,000 solution was practiced twice a day, and Vichy water was prescribed. It is now five months since this treatment was employed, and up to the present time there has been no trouble with the bladder. The second case was one of subacute cystitis, also in a woman, which lasted for over three months. During the first month of the treatment copaiba and uva ursi were administered, and then salol and alkalies, but no material improvement followed. An examination for stone and gonococci gave negative results. At the beginning of the second month an arsenite of copper lavage was instituted and everything else withdrawn. Every other day the bladder was filled at first, and then washed with a

warm 1-to-50,000 solution (90° F.), of which about three quarters were used at once. At first the bladder would not hold more than three or four ounces, but a rapid improvement followed each lavage, and at the end of the second month the patient was discharged. The bladder capacity was then twenty-five ounces, there were no signs of disease, and the cure was permanent.

2. In three cases of gonorrhœa and in one of proctitis, I have met with more or less complete success in the employment of this treatment.

3. In six cases of otitis externa diffusa arsenite of copper was used alone, and in two cases a little morphine was added, but it was found unnecessary, as the simple solution relieved the pain just as promptly. A 1-to-50,000 solution was used, and recovery set in in from one to three days in all the cases.

4. Five cases of rhinitis, one chronic and one subacute. The case of chronic rhinitis deserves special mention. It was a case of ulcerative anterior rhinitis of three years' standing, and the patient had never received more than temporary benefit from any treatment until the application of the arsenite of copper. She has had no other treatment now for sixteen months and is apparently cured. A warm solution of 1 to 100,000 was injected into the nostrils from two to four times a day, as the conditions required. The trouble receded from the first, and only twice has exacerbation occurred; the bleeding and odor disappeared entirely in three weeks, and the ulceration healed in as many months, so that the patient was practically cured in four months, and the further treatment, consisting of one application daily of the solution, was prescribed on account of the predisposition to a recurrence of the disease that threatened several times through neglect. In the meantime, the nose, which had been very much disfigured, regained its natural size and shape. The only internal remedy used was iodide of iron, which, however, had to be discontinued. Of the other cases three were very much benefited, but in the fourth, a peculiar case of periodical rhinitis, the remedy had no apparent effect.

5. In various inflammations of the mouth and pharynx, in twenty-one cases where I used the arsenite of copper solution, I found it a most valuable adjuvant to other remedies without an exception, and, although I have not used it exclusively, I have no doubt that it would have sufficed alone in many cases. It yielded good results in a case of superficial œsophagitis due to swallowing hot bouillon. The aching and burning disappeared rapidly, and the next day the patient could swallow without experiencing pain. It may be said that the effects of arsenite of copper are, as a rule, in cases where it proves efficacious, immediate, and unless a very rapid improvement is noticed it would be useless to continue the remedy.

6. In various intestinal affections I have used this remedy very extensively—over a hundred cases—and, although not uniformly successful, I would recommend it most strongly in suitable cases. If used alone it often fails in catarrhal complaints, as in chronic or subacute gastritis or enteritis. It is clearly indicated in acute inflammations of this tract attended with profuse watery secretions, pain, and rapid exhaustion—i. e., acute gastritis and cholera. A type of disease most clearly indicating the remedy is the genuine cholera morbus, then dysentery and cholera infantum.

7. In none of the preceding cases, however, save perhaps in the last, have I obtained real success, and in none were the results so uniform and brilliant as in the various acute and subacute conjunctivites. I have treated fifty-two patients with arsenite of copper up to the present time with good results. Among these cases twenty-one were traumatic, one was ophthalmia neonatorum, and the rest were due to other causes. Pathologically, these inflammations ranged from a mere red-

dening of the conjunctivæ to the severest forms of effusion. These cases were associated with phlyctenulæ, three combined with keratitis, and one with keratitis and iritis. Twice I have myself suffered from traumatism, and once through transmission by my friend Dr. Z. M.

The duration of the treatment ranged from a few hours to two or three days in mild cases, and from several days to three months in complicated cases, as in the last one mentioned. At no time have I seen a failure, and in all of the cases relief has been nearly instantaneous. The solution used was always that of a hundredth of a grain of the drug (a tablet triturate) to two ounces of boiled or distilled water, applied by means of a dropper every ten or fifteen minutes until relief was obtained; after that every hour. No other remedies are needed. I never seek or trust specifics, for experience has taught me to rely exclusively, in conjunctivitis, on arsenite of copper. The action of the remedy has never been actually defined, and it is uncertain. It is not due to its antiseptic power, for this is very feeble. A one-to-fifty-thousand solution does not perceptibly retard the coagulation of milk or the putrefaction of bouillon and urine. Deducing from my observations, it appears to act in a triple manner:

1. As a cleansing agent.
2. As a soothing agent to the excited vaso-motor nerves.
3. As a cellular stimulant and tonic.

Aulde, in the *Medical Mirror*, St. Louis, December, 1890, praises its value in indigestion.

J. L. Postcome, in the *Edinburgh Medical Journal*, December, 1890, reports success in diarrhœa, cholera infantum, and in dysentery.

W. H. Burtley, in the *Therapeutic Gazette*, January, 1891, recommends it in chronic diarrhœa.

P. Landrum, in the *Medical Summary*, November, 1891, recommends it in diarrhœa.

A. Korndoerfer, in the *Medical and Surgical Reporter*, Philadelphia, July 25, 1891, recommends it in diarrhœa.

B. K. Rathford, in the *Journal of the Medical College of Ohio*, 1891, recommends it in typhoid fever, summer complaint, intestinal catarrh, and tubercular diarrhœa.

W. J. Burd, in the *New York Medical Journal*, November 7, 1891, recommends it in acute diarrhœal diseases.

C. G. Kerley, in the *New York Medical Journal*, November 7, 1891, condemns it as useless.

E. B. Doolittle, in the *New York Medical Journal*, November 7, 1891, expresses an adverse opinion concerning the curative properties of the drug.

W. Blair Stewart, in the *New York Medical Journal*, October 24, 1891, confirms its good effects in diarrhœa, and says that it is valuable as an antispasmodic, as an astringent, and, probably, as an antiseptic.

H. B. Rue, in the *New York Medical Journal*, October 24, 1891, believes it to be a strong germicide, with best results in acute cases of diarrhœa.

J. B. Overlock, in the *New York Medical Journal*, October 24, 1891, recommends it in the night sweats of phthisis.

W. J. Owsley, in the *New York Medical Journal*, October 24, 1891, recommends it in intestinal troubles.

The history of this remedy is as follows: Its use has been confined to diseases of the gastro-intestinal mucous membranes. We meet with the first reference as to its employment in Jahr's *Symptomatic Codex* of 1865; the second in Blakely's paper, which was read before the Homœopathic Medical Society of Pennsylvania in 1868, and the third in the *Medical Investigator* of 1873, by Holcombe; in all it is recommended in minute doses for intestinal troubles. Attention was afterward first drawn to it by Dr. John Aulde, of Philadelphia, who recom-

mended it in colic and in diarrhœal intestinal affections, also in typhoid fever, in the *Medical Register* of September 8, 1888; the *Therapeutic Gazette* of July and November, 1889; the *Medical News*, November 9, 1889; the *Medical Summary*, July, 1890; and the *Medical and Surgical Reporter*, August 22, 1890.

Aulde was soon followed by others, and up to the beginning of the year 1893 the literature on this subject is as follows:

L. Worsham, in the *Therapeutic Gazette*, January, 1890, confirms Aulde.

J. T. Esher and M. F. Dumas, in the *Medical Summary*, July, 1890, confirm Aulde; also, O. H. Lake, in the *College and Clinical Record*, Philadelphia, September, 1890.

307 EAST SEVENTY-SECOND STREET.

A CASE OF CARCINOMA OF THE ANTRUM OF HIGHMORE. NASAL POLYPI.

BY JOHN DUNN, M. D.,
RICHMOND, VA.

Mrs. P., aged fifty-three years. First seen June 8, 1893. Examination of nose and cheek reveals the following condition of affairs: Double proliferating ethmoiditis, affecting chiefly the region of the anterior ethmoidal cells and the middle turbinates. Occlusion of upper air-passages anteriorly, on both sides, by polypi and hypertrophied middle turbinates. In the left nose there is a marked deflection of the septum. No marked posterior hypertrophies. Inner wall of the antrum of left side apparently bulging toward the nasal cavities. Usual amount of pus and mucous secretion. Left cheek swollen. On palpation through skin of cheek, a tumor apparently attached to the cheek bone just above the gums can be felt. Tumor is elastic and feels as though it contained fluid. Examined from the mouth, a bulging can be seen of the cheek wall, extending from about the line of the first bicuspid upward and backward. Mucous membrane over the swelling not inflamed. Tumor is about the size of a pigeon's egg and is attached firmly to the cheek wall just above the gums. Not painful on manipulation. Can not be reduced in size by pressure. A bistoury forced into this mass close to cheek wall meets with little resistance and can be forced upward until it reaches the orbital plate of the superior maxilla, showing that the outer wall of the maxillary bone has been destroyed. A bent probe passed into the wound passes directly into the antrum, which apparently contains a growth of little density. Bleeding slight. No pus or mucus. The question now arose as to the nature of this tumor. Previous history as follows: Nasal trouble for an indefinite number of years. Polypi have more than once during the past year been removed from the nose. For the past month or six weeks patient has suffered from entire occlusion of left nose whenever she has lain down. Lately this occlusion has become painful, and she has been obliged to sleep in an upright position. For a week or more sleep has been well-nigh impossible because of a sense of fulness of right side of face. Patient bears suffering well. No acute pain in neighborhood of growth, but rather a painful sense of continued pressure.

Have we here to deal with a simple sarcoma or with one of its varieties, or with carcinoma, or has this condition resulted from pressure due to the continued presence of a growing polypus in the antrum? The tumor outside of the cheek was carefully probed for pus with bistoury, blunt probe, and hypodermic syringe, and on three occasions. No sign of pus, how-

ever, could be obtained. In passing the bistoury into the tumor particles of bone could be felt.

June 12th.—Polypi have been removed from the nose as far as practicable. The sense of discomfort in the cheek has been so great that the patient can not sleep. Decided to operate. Intention to remove the front and side walls of the antrum and, if necessary, the superior maxilla. Incision made from below the inner angle of the eye, down the cheek at the side of the nose, through the lip. Cheek held out of the way. Bistoury passed to the edge of the tumor and forced into the antrum. Opened into what appeared to be an intra-antral abscess, and cut through considerable loose bone. With a saw the front wall of the antrum as far forward as the nasal process of the superior maxilla was removed. Tumor found to have spread beyond antrum into the tissues of the cheek. Decided that resection of the superior maxilla would be useless. Passing the finger into the antrum, it was found to be filled with a loose, whitish mass, resembling somewhat in appearance the common mucous polypus. Much of this could be removed with the finger nail. The bony walls of the antrum had a mushy, velvety feel. Antrum curetted and packed with iodoform gauze. Bleeding was excessive. The growth in the cheek spread with such rapidity that before the skin wound healed it was already infiltrated with tumor cells.

A portion of the tumor was sent to Dr. Ward A. Halden, of New York, for examination. The growth proved to be a carcinoma.

The further history of the case need not be gone into. The tumor increased rapidly in size. After a few weeks the glands of the neck became involved, and when the patient died, June 24, 1894, the growth extended from above the zygomatic ridge on the left side down the face and neck to the shoulder. It had in several places produced huge nodules, some of which were ulcerated on their surface and covered with a thick, hard, adherent scab. The patient's strength gradually grew less, and she finally died of exhaustion.

The sequence of events in this case seems to have been as follows: An inherited lack of resistance to the development of new growths in certain parts of the upper air tract; the existence and position of the new growth to be determined by the part of the upper mucous tract to which the conditions necessary to the development of the new growth should be applied; the character of the new growth to be dependent upon several things—viz., nature of the conditions applied, such as their duration, chemical or parasitical nature; the state of the general health as affected directly by the local trouble or indirectly by intercurrent diseases. The presence of the septal deviation may be looked upon as the prime external cause of the localization of the carcinoma in the antrum. The deviation was sufficient to cause partial occlusion of the left nose; necessarily some turbinate hypertrophy resulted, and with this more or less chronic congestion of the nasal mucous membrane. From time to time the patient suffered from colds in the head, with increased nasal secretion, which, owing to the fact that it was constantly forming and that there was more or less difficulty in clearing the nose, owing to the presence of the deviation, was allowed to collect in greater or less quantities in the nasal passages, where to an indeterminate and varying extent it underwent certain changes of decomposition. These conditions, working for years in the presence of an inherited lack of resistance,

produced, finally, changes in the ethmoid cells, bringing on proliferating ethmoiditis with the production of polypi, etc. This last condition was neglected until the entrance to the antrum of Highmore became occluded, either through pressure from the ethmoidal polypi or the development of a polypus in the entrance itself. As a result of this, the antrum being closed, a purulent inflammation of this cavity took place. Nor is it at all unlikely that a polypus grew into the antrum, springing from the unciform process of the ethmoid. (I have seen one case where this point of origin seemed most likely.)

This condition in turn was indefinitely neglected, or virtually so, since no treatment other than the removal of the larger nasal polypi was received. And it is in the continuance of this inflammatory condition of the antral cavity that is in all likelihood to be properly sought the localization of the carcinoma in the antrum as its point of origin, and not elsewhere in the upper mucous tract. The growth at the time of the operation had invaded apparently all the walls of the antrum. Why it should have chosen the lower part of the outer wall as its first point of escape from the antrum I do not know. It may be suggested that this is the deepest part of the antral cavity, and it is here the purulent matter accumulated in greatest quantities and was subject to the fewest changes from position of the head, etc., and hence the growth may have been oldest in this position.

The further question here arises, Could there have been originally a mucous polypus of the antrum which degenerated into a carcinoma? Fink reports a case (*Archiv für Laryngologie*, Band ii, Heft 1) where obstruction of the nose had existed since youth. In the patient's twelfth year polypi were diagnosticated. At the age of thirty a protrusion of the upper maxillary region was observed, the nose being full of polypi. Many polypi were removed within the next three years. At the age of thirty-three the antrum of Highmore was opened under the diagnosis of empyema of the antrum. This failed to relieve matters and the upper jaw was resected. Examination showed a carcinoma. Death followed from cachexia. The reporter thinks this case shows beyond doubt that benign fibro-myxomata can be transformed into carcinomata. The case, however, does not prove this, and the question still remains unanswered as to whether, in the cases where carcinoma appears in an antrum which for years has been the seat of a purulent process, and in all likelihood the home of one or many fibro-myxomatous polypi, the carcinomatous growth takes its origin in the walls of the antrum as the result of the presence for years of the changes produced by the constant presence of pus and its products, or whether polypi in a closed cavity undergo a transformation into carcinoma. The condition of the mucous membrane lining the antrum seems rather to favor the former of these solutions. Its thickened, velvety feel, at all events, suggests that it might be the starting point of the degeneration. The two cases mentioned in this article show, however, that there is a serious side to nasal polypi; show that they are at times followed by, if they do not degenerate into, carcinomata, and that they can thus stand in a causal relation to this dreadful disease.

ELECTRICITY IN HÆMORRHAGE INTO THE EYEBALL.*

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THE progress in the use of electricity in therapeutics has been marvelous in the last few years. Some of the uses and effects of electricity are clearly established. There are still many opportunities open for investigation and observation.

The use of electricity in the treatment of eye diseases, especially in the treatment of opacities in the vitreous, presents a large field for investigation.

The electrical current has been employed with much success in clearing up opacities of the vitreous, and theoretical considerations as well as experience sanction its employment.†

Girard Lenlow states as a result of his investigation in this matter that the electrical current is the most effectual and also the most rapid remedy in the treatment of opacities of the vitreous. Opacities in the vitreous may be caused by diseases of the chorioid or retina, but very often they are caused by external injury, giving rise to a hæmorrhage into the anterior or posterior chambers or into both, the blood entering from without.

In quantity the hæmorrhage may be only small, not interfering very much with the vision. It may be profuse enough to fill both chambers with blood, and with the ophthalmoscope you may find only a few small flocculi or striæ, or you may find only a dark surface, not even be able to detect any reddened appearance.

This condition is generally found when the hæmorrhage occurs from without, by punctured wounds either through the cornea or through the sclerotic coat of the eyeball. Between those extremes all kinds may be present.

Prognosis.—As to results of hæmorrhage into the eyeball when it occurs from diseases of the retina or chorioid, it is governed by those diseases, or when into the anterior chamber from wounds through the cornea, the prognosis is in a measure favorable, as Leber has reported a few cases of recovery.‡

Liebreich* has reported a case in a woman of forty-five years of age, who after suppression of her menses had a hæmorrhage into the eye completely shutting out the light, which in the course of time was completely absorbed and her vision fully restored. Hæmorrhages into the vitreous from the chorioid or retina are often absorbed, and the vision restored in part or completely.

But where the hæmorrhage into the vitreous is caused from external violence or from wounds in the sclerotic, the prognosis is very unfavorable. If in the anterior chamber it falls to the bottom and is absorbed.

Treatment.—Iodide of potassium, mercury, jaborandi, leeches, cupping, blisters. If due to diseased conditions

of the background of the eye, if possible restore that. Galvanism so far, I think, gives the best results. As to the direction of the current, as to which pole should be placed over the affected eye, as to the quantity and length of time of a séance, the frequency of application, there is still some doubt. Some have used the positive, others the negative, some both; some from three to ten cells; others are now using a milliampèremeter, and thus are able to tell the strength they are using. Some have used faradism with some improvement. Some writers say in hæmorrhagic retinitis the galvanic current may be employed with the reasonable expectations of clearing up the hæmorrhage and of preventing its recurrence. There are a few cases on record where the hæmorrhage has been absorbed and the vision nearly or quite restored. There are also many cases where the internal as well as local treatment has not benefited the patient, with no absorption of the clot, and the vision lost.

Galvanism has, I think, given the best and promises more results than any other plan of treatment. Whether the constant current acts by the chemical decomposition of the blood in the chamber, or as a stimulant to whatever absorbents may be present, is as yet unsettled.

My plan of using the constant current has been to apply the glass eye bath filled with warm water over the affected eye, so the patient could wink and thus get the water under the lids to the conjunctiva, to which was attached the negative pole of the battery; the positive was applied by a sponge electrode to the cervical region of the spine or to the temporal region.

A current of from one to five milliampères was then passed through for from five to ten minutes at a sitting. The sittings were two or three a week. My cases are too few to make a positive statement, but enough to show, as it were, in what direction the wind blows, or as to what may be accomplished in some cases. I have only two cases to report with my results, or only two upon which the galvanic current was used, in the removal of the results of hæmorrhage.

CASE I.—William H., aged twenty-eight years, machinist by occupation, but, owing to ill health, was doing outdoor work, and was foreman of the construction of a sewer. In September, 1892, while filling his pipe with tobacco and lighting it, after a few puffs of smoke there was an explosion. Likely it was a cap containing the fulminate of mercury, used for igniting dynamite, which he possibly had in his pocket; as he carried his tobacco loose in his pocket, it could easily happen. After the explosion Mr. H. found he had several wounds in his face, and very soon noticed he was blind in his left eye. He was sent to me by his physician a few days after the accident. His left eye was cut through the upper lid about the middle, between the inner and outer canthus, an incision posterior to the corneo-sclerotic junction, of three eighths of an inch in length, followed by extensive hæmorrhage from the wound into the posterior chamber.

The eye, so far as external appearance was concerned, was normal. The pupil was very sluggish in response to light. Tension slightly increased.

A strong light reflected into his eye, not a glimmer of light could be seen by him. The ophthalmoscope revealed only a dark surface. The anterior chamber normal in depth and free

* Read by title before the State Medical Society of Pennsylvania, May 17, 1894.

† Bigelow's *International System of Electricity*, p. 12.

‡ *Ibid.*

* Graefe und Sämisch, vol. iv, p. 533.

from hæmorrhage. After treating him for over four months with potassium iodide, jaborandi, mercury, blisters, and general tonics, without any results—after getting advice from some of the best men in the country, who told me the case was evidently hopeless—I proposed the treatment with galvanism as possibly a chance. After using it three times a week for two weeks he thought the cloud was getting thinner. After four weeks of treatment he could perceive light from darkness, and soon thereafter a small part of the red reflex from the retina could be detected from the inner part of the eye with the ophthalmoscope. At the end of two months he could see light, and the spot of reflex from the retina was increasing.

His internal treatment was continued as before. At six months the retina could be seen dimly all over the posterior part of the eye; the fibers or striæ well marked, with vision improving so as soon to be able to recognize small objects; count fingers when in close proximity. In a year's time his vision was $\frac{1}{2}$ —, with the striæ still present. While he does not have working vision, he has still useful vision left with the injured eye.

CASE II.—H. S., aged forty-two years. Hæmorrhagic retinitis, possibly caused by diabetes.

In June, 1890, had the first attack of hæmorrhage, following some exertion. A few moments following he noticed he could not perceive light with one eye. The ophthalmoscope revealed a very faint reflex, but under general treatment it was partly absorbed in three months. Just at this time he had an attack in the other eye, which was almost as bad as the first. The second eye cleared up fairly well, vision improved in both eyes, but the hæmorrhages recurred in both eyes during the year. As one eye would improve, the other would get worse. After a year's treatment, directed to the diabetes and the general health, I gave him galvanism once a week to both eyes. In a short time both eyes had cleared to vision $\frac{1}{2}$, when, in a few months, another hæmorrhage occurred in the first eye, again completely shutting out all light. The galvanic current was continued only once a week, as he lived quite a distance from the city. In two months the vision had markedly improved, and has continued to hold at least its own. There has been no hæmorrhage now in either eye for over a year. His vision, $\frac{2}{3}$. Earlier the slightest exertion would bring on a hæmorrhage; now he can do light work on the farm; and, as there has been no recurrence of the hæmorrhage, with his vision possibly still improving, there has been marked improvement in the condition of the blood-vessels, as well as in the absorption of the hæmorrhage.

Galvanism, then, in these cases has at least been quite an addition in their treatment, and much of the benefit is due to its use.

AN ERRATIC CASE OF SMALL-POX.*

By THOMAS J. BARTON, M. D.,

TIVOLI, N. Y.

C. I. R., aged fifty-six years, a man of active outdoor habits, exposed to the raw air of winter, came home sick on Wednesday, February 21st. He remained at home on Thursday and sent for me on Friday. I found him sitting by the fire slightly indisposed. I prescribed a mild laxative with quinine, gr. ii, t. i. d. It will be noticed that he had no physician on Thursday. I mention this to show the trivial nature of his

sickness. On Saturday he thought himself well, but said he would stay in a few days so as not to have a setback. On Sunday afternoon I found a great change. Tongue dry and hard like a piece of russet leather. He moved his tongue with difficulty. His mind was wandering. His eyeballs had an unsteady, quivering motion. He was very sick. On Monday morning he was much worse. His tongue was dry, hard, rough, dark, typhoid. He was drenched in perspiration. He passed his urine unconsciously, involuntarily—his bladder was empty. He was stupid, comatose, but not stertorous. His knees were sharply flexed. His pupils were equal and normal; his eyeballs quivering, unsteady. His head had a jerky motion. Temperature, 100.5°. An able and experienced practitioner who saw him at this time pronounced it a case of cerebro-spinal meningitis, and said that the patient could not live till the next morning.

In the afternoon he had convulsions; his attendants thought him dying. But on Monday evening a strange thing happened. What seemed to be four small blisters appeared on his left foot—three on the dorsal aspect, one on the plantar. Those on the dorsal aspect were situated as follows: One on the instep, one on the phalangeo-metatarsal articulation of the great toe, one on the second toe. The one on the plantar surface was directly under the heel. Simultaneously with the appearance of these blisters there was a great improvement in all his symptoms. His mind began to show a return of normal activity, he responded to questions with gradually increasing clearness, his urine no longer passed involuntarily, and by Tuesday morning, on consultation, the danger had passed away.

What, then, was this strange, this terrible power which, within two days, had carried a strong man to the brink of the grave and returned him again to the land of the living; which had thrown him down prostrate, helpless, wallowing in his own excretions; which had drenched him in perspiration, even while his mouth and tongue were dry and hard as darkest typhoid; which had racked his frame with convulsions and departed? The answer to this question was destined to appear later.

For the present we must be content to grope blindly, darkly, feeling our way with caution.

A specimen of his urine was obtained which contained albumin. Uræmia, a word which, like charity, covers a multitude of sins, was accepted as a temporary diagnosis, although manifestly incapable of explaining these curious phenomena.

For several days there continued a gradual improvement. The tongue was less typhoid, the mental eclipse less marked. But while this general improvement was going on, a curious change was taking place in what I have described as seeming to be four small blisters on his left foot. For, unlike blisters, they were gradually increasing in size by a steady process of growth and development. The one on the plantar surface of the heel, when first noticed on Monday evening, was about the size of a nickel five-cent piece; by Tuesday morning it was nearly as large as a silver half dollar; gradually increasing, it measured on Friday morning three inches and a half by two inches. The three on the dorsal aspect of the foot were meanwhile undergoing a similar process of development. The one on the instep and the one on the metatarso-phalangeal articulation of the great toe became finally as large as hickory nuts, the one on the second toe smaller.

The gradual enlargement of these so-called blisters by a slow and steady process of development began to suggest the idea that they were not in reality blisters, but rather a result of some pathological process as yet unrecognized. This idea was strengthened by the fact that they were not inclined to discharge their contents on being opened. They could not be emptied

* Read before the Medical Society of the County of Dutchess, N. Y., June 13, 1894.

except by being scraped out entirely. On scraping away their contents, the skin beneath was not smooth and whole as we find beneath a blister, but indented with slight erosions. In the middle of each blister was a hole entirely through the skin. The hole through the skin beneath the large blister under the heel was larger than a silver quarter of a dollar.

What, then, I said to myself, are these strange objects, so unlike anything I have ever seen? To add to my embarrassment, on Friday the patient was worse. The fever returned and the temperature became higher than at any time during his sickness—viz., 103.5°. His tongue became again dry and hard and his mind more wandering. But while my mind was filled with gloomy forebodings, a discovery was made which threw a flood of light on the case. It was discovered that, about two weeks before his sickness, he had on several occasions been exposed to the contagion of small-pox. Could this, then, be a case of variola? Is this second access of fever the secondary fever of small-pox?

The entire absence of any eruption on any part of his body except the left foot was certainly a curious and unlikely thing to occur in small-pox. The external appearance of those blisters was totally unlike the variolous pock. There was no central depression whatever. On the contrary, they were smoothly convex, as an ordinary blister. But, if not variolous pocks, what were they? Blisters in the ordinary sense they certainly were not. Their gradual growth and development and the nature of their contents forbade that idea. Besides, nothing had been done to produce a blister. It is true, a mustard draught had been applied to the soles of his feet between two cloths. But no mustard had touched the dorsal surface on which three were situated, and the draught had not extended back to the heel, where the big pock originated. Besides, the big pock originated where the cuticle is thick and hard as leather, and it is, moreover, very unusual for mustard to raise a blister. There is, then, not the slightest reason for adhering to the name of blister which we temporarily applied.

The vesicle of chicken-pox discharges its contents like an ordinary blister on being opened—in other words, it is unicellular. The vesicle of small-pox, on the other hand, being multicellular, can not discharge its contents on being opened. The multicellular nature of the vesicle of variola is, in fact, its most pathognomonic feature.

In our Red Hook epidemic, in all the early cases, the central depression in the vesicle was wanting. This, in fact, caused us to doubt at first whether it was really an epidemic of small-pox. In many epidemics convulsions are a common symptom. In our epidemic the only case of convulsions was that of C. I. R. The case of C. I. R. was, in fact, aside from the erratic eruption, one of the most typical cases occurring in our epidemic. A case of a little girl, aged seven years, occurring in a neighboring house, furnished a close parallel. In both cases the attack was sudden; both patients were stupid, insensible, comatose; both passed their urine involuntarily; in both the urine contained albumin; both had that peculiar motion of the head and eyeballs, so that the girl's father, in describing her symptoms to me, used the expression, "Just like Clint."; both were better as soon as the least eruption appeared; both improved for four or five days, and then had a return of fever, in which the temperature went higher than the primary fever.

Another case, occurring in the practice of my friend Dr. Pritchard, might perhaps throw a suggestion of light as to the location of the eruption on C. I. R.'s left foot. This was the case of a man, aged about fifty years, whose first symptom was pain in the lumbar region. Being a wise man, he made his own diagnosis. He said: "There is nothing the matter with me but a little rheumatism in my back. I always knock that out

in a few days with iodine." He accordingly painted his back with tincture of iodine. The region painted became the seat of confluent small-pox. On all other parts of his body the eruption was very slight.

Now, C. I. R., on the Wednesday preceding his sickness, did considerable walking. It will be noticed that the four vesicles were situated exactly where the irritation of walking might take effect like the tincture of iodine. The biggest one was situated directly under the heel, where the whole weight of the body is thrown at every step; one on the instep, where the shoe always pinches; one on the phalangeo-metatarsal articulation of the great toe, the next prominent point of pressure. But what of the second toe? Now, it so happens that in the case of C. I. R. the second toe overrides its two neighbors, and thereby becomes a point of pressure. Thus we account for the location of the four vesicles.

Those who wish to investigate further the curious subject of the abnormal distribution of eruptions in exanthemata should read Trousseau's lecture on Defaced Scarlatina.

Any one who has had much experience in vaccination must have noticed the many curious forms of the accompanying eruption.

Dr. Cookingham, a man of unerring medical instinct, who saw the holes in C. I. R.'s foot, was struck with their resemblance to vaccination sores. Their origin, in fact, was entirely similar. In vaccination all the eruption of a case of cow-pox is concentrated in one or two places.

In the case of C. I. R. all the eruption of a severe case of small-pox was concentrated in four places.

As cow-pox and small-pox are so nearly allied, it is not strange that the effects are similar when they are concentrated in a few places.

[In the discussion Dr. Pritchard said:

"I desire to add a word on a point barely noticed by Dr. Barton—viz., the little value of the central depression of the small-pox vesicle as a point in diagnosis.

"In the first four cases of the Red Hook epidemic, out of hundreds of vesicles, we were unable to find a single one with a well-marked central depression.

"Our examination was thorough and careful, for we were anxious to make out a diagnosis, not alone of the individual cases, but of the epidemic.

"In spite of the lack of the central depression, we pronounced them small-pox, and the future history of the epidemic proved that our diagnosis was correct.

"I will add that, out of twenty cases, there was one death—a mortality of five per cent."

Dr. Cotter said:

"Dr. Barton's case is certainly a curious illustration of the protean forms which disease is capable of assuming.

"Diseases come to us, as it were, in masks and disguises, as though with intention to deceive us.

"Trousseau says, speaking of small-pox: 'The abundant sweat that sometimes accompanies the fever of incubation usually announces that confluent small-pox is not to be feared.'

"This case is a striking illustration of the wisdom of that remark. The sweat was prodigiously abundant; there were four vesicles, perfectly discrete.

"Taken altogether, it was a most remarkable example of that dread disease which was once, in the words of Macaulay, of all the ministers of death the most terrible, but over which science has since achieved a succession of glorious and beneficent victories."]

CASES OF VASO-MOTOR RHINITIS FROM MALARIAL POISON.

BY WALTER F. CHAPPELL, M. D., M. R. C. S.,

SURGEON TO THE THROAT AND NOSE DEPARTMENT OF
THE MANHATTAN EYE AND EAR HOSPITAL, NEW YORK.

THE poison of malaria is such an important element in considering the cause and course of so many of the diseases we are asked to treat that the following histories seem worthy of reporting:

CASE I.—Miss F., aged eighteen years, consulted me on the 27th of November, 1893, and gave the following history: Her mother, two sisters, and herself had had slight attacks of malaria, off and on, since childhood, and the patient always felt she had some malarial poison about her. On the 15th of November, 1893, after returning to the city from the mountains, she was awakened about five o'clock in the morning with a chilly sensation, followed in half an hour by violent attacks of sneezing and a watery discharge from the nose, which became so profuse that it saturated nine or ten large handkerchiefs in an hour. This condition continued until about 8 A. M., when the attack began to subside and disappeared completely by eleven o'clock. During the afternoon and evening considerable languor and drowsiness was experienced. On retiring the next night she slept heavily until five in the morning, when another attack set in. These symptoms recurred daily for a week. Various local remedies and internal medication were employed, with no relief, until quinine was given. Small doses of this remedy modified the symptoms. Increasing the doses and regulating them as would be done for a malarial attack stopped the sneezing and rhinorrhœa within forty-eight hours. The symptoms did not return again until six months later, when in June, 1894, there was a recurrence similar to the previous attack, the paroxysms occurring every other day instead of daily as on the previous occasion. Quinine stopped the attacks at once.

CASE II.—Mr. I., aged fifty years.* Rheumatic and malarial history, with attacks of both diseases at intervals since childhood. In April, 1891, while on a visit of two weeks in the country, he had chilly feelings every morning. The day following his return to the city Mr. I. was awakened by what he supposed was a severe cold in the head. On rising he felt weak and depressed, but as the morning progressed his condition improved and by 11 A. M. all the symptoms of a cold had disappeared. The next day was passed in comparative comfort; but the day following, the nasal symptoms reappeared with a temperature of 101° F., and a general feeling of distress and decided chilly sensations. This condition recurred every second day for a week, then daily. Antirrhematics and numerous other drugs were administered and applied by various physicians whom Mr. I. consulted without benefit. Large doses of quinine gave immediate relief. Several subsequent attacks have also been controlled by quinine.

CASE III.—M. J., aged thirty-one years, came to the throat department of the Manhattan Hospital in June, 1894, and gave the following history: During the past five years she had suffered from a sensitive condition of the mucous membrane of the nasal fossæ, catching cold if she rode in the wind or dust, and on the slightest change in the temperature. During this period she had had three attacks of intermittent fever at intervals of about six months, and at times had felt weak and depressed. Early in April, 1894, while visiting in the country, she noticed that some mornings she awoke with a cold in the head which passed off as the day advanced. About the same time she began to have cold sensations in the early morning.

This condition continued with increasing intensity until she presented herself at the hospital with both nasal chambers occluded, and the upper lip and cheek somewhat excoriated by the irritating properties of the nasal discharge. Her general condition was one of anæmia. Various remedies were given to control the nasal discharge and to improve the physical condition, with little relief.

The treatment was then framed as for an attack of malarial disease, and proved successful immediately. The attacks were absent for a week, when they returned after a day of violent exertion, but were controlled by quinine, and she has continued well ever since.

CASE IV.—Mrs. T., aged forty-two years. Early in life she had several attacks of intermittent fever. During the past ten years she had spent her summers in a malarial district, and, although there had been no recent attack of intermittent fever, she never felt well. Recently she had awakened every morning about four o'clock with a chilly sensation, which continued at intervals until about 11 A. M. She felt chilly and tired most of the time, and constantly wore a shawl in the house. Her complexion was ashy in appearance. I had prescribed for several attacks of malarial disease and at different times had the temperature taken daily for more than a month, and never found it below 99° F. In April of 1893 and 1894, after visiting Lakewood for two weeks, Mrs. T. had attacks of vaso-motor rhinitis, accompanied by severe chills and high fever, the temperature ranging from 103° F. to 105° F. During the first attack the symptoms appeared daily, but the following April they appeared every other day. Quinine in large doses was administered for both attacks and controlled them almost immediately.

The four histories presented are those of the most marked cases seen, but notes of some ten others of a similar nature have been considered, and in view of the experience from these cases there is little doubt that many which are not diagnosed as such are truly of malarial origin.

The symptoms of rhinitis yielded to the administration of quinine in some patients, while others had their symptoms modified by it, showing that some were caused by malarial poison alone, while the others had a malarial element in them which possibly determined their course and symptoms. Subjects of chronic malarial poisoning seem most liable to this form of rhinitis.

Severe chills and high temperature are not usual during the nasal attacks, although in one of my cases the temperature reached 105° F. The average temperature in all the cases was 100° F. during the morning, when the sneezing and rhinorrhœa were severe, and normal in the afternoon and evening.

22 EAST FORTY-SECOND STREET.

A Quick Answer.—A correspondent sends us a story told of an old country doctor down East. In the latter years of his life his ankles became very weak, necessitating the wearing of a pair of steel braces. One day, as the old gentleman was shuffling along on Exchange Street in Bangor, Me., some young wag called out: "Hi, doctor, hi, you are interfering!" "Not with other folks' business, young man!" retorted the doctor.—*Medical Record.*

The University of Virginia.—The *Charlottesville Chronicle* announces that Dr. T. R. Evans has been appointed temporary lecturer on obstetrics, and that the permanent appointment will shortly be made known.

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DIPHTHERIA AT THE BUDAPESTH CONGRESS.

THE *British Medical Journal* for September 15th summarizes a considerable portion of the work done at the Eighth International Congress of Hygiene and Demography, recently held in Budapesth. Prominent among the subjects that received elaborate consideration was diphtheria. Dr. Billings, of the United States Army, presented a report on the statistics of diphtheria and membranous croup in the United States. It appeared from this report that in every thousand deaths in the whole country, for the census year ending May 31, 1890, 49.54 were due to diphtheria and croup. A similar report for the United Kingdom was presented by Dr. Edward Seaton. In this report it was stated that for the years 1890-'92 one hundred and ninety-two persons in every million of the population of England and Wales had died of diphtheria. A similar report was presented by Professor Loeffler, of Greifswald.

M. Roux made a communication with regard to the antitoxine treatment of the disease, and gave the statistics of the use of this treatment in the Paris *Hôpital des enfants malades*. From the 1st of February to the 24th of July 448 children had been admitted into the diphtheria pavilion, and of this number 109 had died—a mortality of 24.33 per cent. In the four previous years 3,971 patients had been admitted, and 51.71 per cent. had died. The improvement in the death-rate attributable to the antitoxine treatment, therefore, had been 27.38 per cent. Still more satisfactory results were reported from the *Hôpital Trousseau*. Good as these results were, M. Roux thought that they might be improved still further by stricter isolation of the patients, for many deaths after tracheotomy were due to broncho pneumonia, and it had been noticed that a series of such cases might follow the admission of a child suffering with laryngeal diphtheria associated with the presence of streptococci.

Concerning the prophylactic efficacy of the antitoxine serum, Dr. Aronson, of Berlin, reported that he had thus inoculated 130 children belonging to families in which a case of diphtheria had occurred, and only two of them had contracted the disease, and that had been of a very mild type. He had used the serum of the immunized horse, which was three times as strong as Behring's.

MINOR PARAGRAPHS.

DRINKING-WATER AFTER A DROUGHT.

WILLIS A. BARNES, Esq., whose article on Sanitation for Villages and Towns we summarized in our issue for July 14th, sends us a note of which the following is the substance: A

water-shed that is likely to be tainted by human beings, either from residence or manufacturing influences, or that may be occupied more or less by animals, is at all times subject to causes which make water impure. During the ordinary conditions of weather, when the rainfall is frequent, such accumulations of impurity as may from time to time be lodged are washed off and mingling with the smaller and greater bodies of water in the streams, are subjected to that natural destruction which occurs when impurities in water are exposed to atmospheric oxygen, or by movement of the water over irregular river beds or rapid descent down sharp grades or over falls. However true this may be in ordinary times, the conditions are very seriously altered when a water-shed has been subjected to a long drought, such as portions of the United States have been suffering from for some time past. Upon water-sheds which furnish potable water a vast accumulation of impurities must take place during drought, and germs of disease of all kinds will certainly be found. These impurities, when the rains do come, will be washed down into the streams which will no doubt move under the influence of flood, and therefore the waters with their contained impurities must be carried on rapidly to the reservoirs from which distribution for consumption is made. That this water is very impure and likely to be disastrous to health can not be doubted. There is but one way to defeat this danger, and that is to drink the water only after it has been boiled. The water should be filtered also, but, as perfect filtering means slow accumulation in the vessel from which the water may be used, it is less likely to be done than boiling. But a good addendum to boiling is the quick filtering through cotton, sand, or sawdust, wherein many particles of suspended matter will be retained, but such filtration has no influence upon the minute germs of disease in suspension or upon impurities in solution; boiling is the only remedy.

THE NEW BLOOMINGDALE ASYLUM.

It is announced that the task of transferring the patients to the new establishment in White Plains has been completed. To move eight hundred lunatics a distance of twenty miles, more or less, without accident and almost without attracting attention, is an achievement requiring no ordinary amount of forethought and attention to details. The medical superintendent, Dr. Lyon, is entitled to great credit for the success with which the transfer has been made.

ANTHROPOLOGY AT THE ELMIRA REFORMATORY.

THE *Eighteenth Year Book of the New York State Reformatory at Elmira*, which is a handsome and instructive volume, contains a section entitled Short Notes in Anthropology, by the physician of the institution, Dr. Hamilton D. Wey. Portraits and various bodily measurements are given of a number of individuals with criminal tendencies, some of whom are allowed to give their own accounts of their past histories, and these are particularly interesting.

ITEMS, ETC.

The Death of Dr. William A. M. Wainwright, of Hartford, took place on Monday, the 24th inst., as the result of a most unfortunate accident. It is said that he was engaged in cleaning a pistol, and that it exploded and sent a ball into his abdomen. Dr. Wainwright was one of the best known and most highly esteemed practitioners in Connecticut, not only for his professional attainments, but also for his chivalry and geniality. He was a son of the late Bishop Wainwright, of

New York. He received his medical degree from the College of Physicians and Surgeons (now the Medical School of Columbia College) in 1867. After having served for the usual term of two years on the surgical house staff of the New York Hospital, he established himself in practice in Hartford, where he speedily attained to an assured position. He was fifty years old at the time of his death. He was the author of an interesting *Medical History of Hartford County*, originally published as a contribution to a *Memorial History* of that county.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending September 25, 1894:

DISEASES.	Week ending Sept. 18.		Week ending Sept. 25.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	24	6	39	3
Scarlet fever.....	28	1	32	4
Cerebro-spinal meningitis....	0	0	1	1
Measles.....	21	5	15	3
Diphtheria.....	105	24	98	31
Small-pox.....	8	2	1	4
Tuberculosis.....	81	110	146	92

Change of Address.—Dr. Samuel M. Brickner, to No. 174 West Eightieth Street.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from September 2 to September 23, 1894:*

KEAN, JEFFERSON R., Captain and Assistant Surgeon, is granted leave of absence for twenty days, to take effect on October 10, 1894.

CORSON, JOSEPH K., Major and Surgeon, is granted leave of absence for one month, to take effect on being relieved from duty at Washington Barracks, D. C., with permission to apply for an extension of fifteen days.

MATTHEWS, WASHINGTON, Major and Surgeon, is granted leave of absence for four months on a surgeon's certificate of disability.

EWING, CHARLES B., Captain and Assistant Surgeon, is granted leave of absence for one month and fifteen days, to take effect on or about September 10, 1894.

KENNEDY, JAMES M., First Lieutenant and Assistant Surgeon, will be relieved from duty at Fort Custer, Montana, and will report in person for duty at Camp Merritt, Montana.

KIMBALL, JAMES P., Major and Surgeon, is granted leave of absence for one month, to take effect after the termination of present field duty at Raton, N. M.

GRAY, W. W., Captain and Assistant Surgeon, is granted leave of absence for twenty days, to take effect upon the arrival of a medical officer at Fort Schnyler.

SMART, CHARLES, Major and Surgeon, and PERLEY, HARRY O., Captain and Assistant Surgeon, are detailed as delegates to represent the Medical Department of the Army at the Twenty-second meeting of the American Public Health Association to be held at Montreal, Canada, September 25 to 28, 1894.

CLEARY, PETER J. A., Major and Surgeon, is relieved from duty at Fort McPherson, Georgia, to take effect upon the expiration of his present leave of absence, and ordered to Fort Brown, Texas, relieving DAVIS, WILLIAM B., Captain and Assistant Surgeon. Captain Davis, upon being relieved by Major Cleary, will report for duty at Fort Brady, Michigan, relieving CLENDENIN, PAUL, Captain and Assistant Surgeon. Cap-

tain Clendenin, upon being relieved by Captain Davis, will report for duty at Fort Warren, Massachusetts.

So much of the ordinary leave granted to LIPPITT, WILLIAM F., First Lieutenant and Assistant Surgeon, as is embraced in the period from August 10 to September 25, 1894, is changed to leave of absence on surgeon's certificate of disability.

BRECHEMIN, LOUIS, Captain and Assistant Surgeon. The leave of absence granted for seven days is extended to twenty-three days.

CRONKHITE, HENRY M., Major and Surgeon, is granted leave of absence for one month.

KENDALL, WILLIAM P., Captain and Assistant Surgeon, is granted leave of absence for twenty-one days, to take effect about September 20, 1894.

CARTER, EDWARD C., Captain and Assistant Surgeon, is relieved from duty at Vancouver Barracks, Washington, and ordered to Fort Buford, South Dakota, for duty, relieving APPEL, AARON H., Captain and Assistant Surgeon. Captain Appel, on being relieved by Captain Carter, will proceed without delay to Fort Ethan Allen, Vermont, and report for duty at that post.

MACAULEY, C. N. B., Captain and Assistant Surgeon. The leave of absence granted for seven days is extended to twenty-three days.

WOODRUFF, CHARLES E., Captain and Assistant Surgeon, is relieved from duty at Fort Assiniboine, Montana, and ordered to Fort Sheridan, Illinois, for duty, relieving IVES, FRANCIS J., Captain and Assistant Surgeon. Captain Ives, on being relieved by Captain Woodruff, is ordered to Plattsburg Barracks, New York, for duty, relieving PERLEY, HARRY O., Captain and Assistant Surgeon. Captain Perley, on being relieved by Captain Ives, is ordered to Baltimore, Md., for duty as attending surgeon and examiner of recruits, relieving CRAMPTON, LOUIS W., Captain and Assistant Surgeon. Captain Crampton, on being relieved by Captain Perley, is ordered to Fort Meade, South Dakota, for duty.

Society Meetings for the Coming Week:

MONDAY, *October 1st*: German Medical Society of the City of New York; Morrisania Medical Society (private); Brooklyn Anatomical and Surgical Society (private); Utica, N. Y., Medical Library Association; Corning, N. Y., Academy of Medicine; St. Albans, Vt., Medical Association; Providence, R. I., Medical Association; Hartford, Conn., Medical Society; Boston Society for Medical Observation; South Pittsburgh, Pa., Medical Society; Chicago Medical Society; Monmouth, N. J., County Medical Society (Freehold).

TUESDAY, *October 2d*: New York Obstetrical Society (private); New York Neurological Society; Elmira, N. Y., Academy of Medicine; Buffalo, N. Y., Medical and Surgical Association; Ogdensburgh, N. Y., Medical Association; Syracuse, N. Y., Academy of Medicine; Medical Societies of the Counties of Broome (annual), Columbia (annual—Hudson), Orange (semi-annual—Goshen), and Schoharie (semi-annual), N. Y.; Medical Association of Northern New York (annual—Malone); Hudson, N. J. (Jersey City), and Union, N. J. (quarterly), County Medical Societies; Baltimore Academy of Medicine; Chittenden, Vt., County Medical Society.

WEDNESDAY, *October 3d*: Society of Alumni of Bellevue Hospital; Harlem Medical Association of the City of New York; Medical Microscopical Society of Brooklyn; Medical Society of the County of Richmond (Stapleton), N. Y.; Bridgeport, Conn., Medical Association; Penobscot, Me., County Medical Society (Bangor).

THURSDAY, *October 4th*: New York Academy of Medicine; Brooklyn Surgical Society; Society of Physicians of the

Village of Canandaigua, N. Y.; Boston Medico-psychological Association; Washington, Vt., County Medical Society; Obstetrical Society of Philadelphia; United States Naval Medical Society (Washington).

FRIDAY, *October 5th*: Practitioners' Society of New York (private); Baltimore Clinical Society.

SATURDAY, *October 6th*: Clinical Society of the New York Post-graduate Medical School and Hospital; Manhattan Medical and Surgical Society (private); Miller's River, Mass., Medical Society.

Letters to the Editor.

THE PERILS OF FOOTBALL.

PLATTSBURGH BARRACKS, N. Y., *September 20, 1894.*

To the Editor of the New York Medical Journal:

SIR: The paper read by Dr. Henry G. Beyer, of the navy, at a recent meeting of the American Physiological Society, entitled *Football and the Physique of its Devotees*, editorially noticed in your issue of the 1st inst., is an interesting contribution to the literature of the subject, and it is hoped its writer will continue his observations. So much of a sensational character pro and con has been written regarding the effects of football upon the health that a systematic study of its effects upon those who play the game for several successive seasons and a knowledge of their physical condition in after years alone can definitely settle the question. Dr. Beyer's deductions certainly appear inconclusive and his estimate of the dangers of the game is much too conservative. He evinces a desire to be judicial, but, while admitting that the opponents of the game seem to have the best of the argument, he weakens this admission by subsequently maintaining that all cases of recorded deaths would be found on investigation to be due to gross carelessness, and that all injuries that he has witnessed on the football field in games played by gentlemanly and well-matched players have been amenable to treatment and have resulted in perfect cures. I have seen many severe injuries in games between such players, but candor of course compels the acknowledgment that among scientific and well-disciplined players the element of danger is less pronounced than among average players. But ideal football is altogether exceptional. Any one who has witnessed many games even between well-bred young men knows of melancholy instances of loss of temper, savage blows, and even deliberate infliction of injury to disable a successful antagonist. We can not expect the cardinal virtues to stand out conspicuously in the fierce rush and struggle and personal contact of this roughest of all games. As well might we rely upon an angry and turbulent mob of strikers to refrain from acts of violence.

It is significant of the true state of affairs when parents give their consent to sons at school to take part in other athletic games, but strenuously object, as I have known many to do, to their playing football.

The data adduced by Dr. Beyer relating to changes in the physique and health produced by football playing, while of interest and value, do not, to my mind, prove that the game is either better or worse than other athletic exercises. We might expect such changes from any outdoor sport requiring violent muscular effort. The opponents of the game, as I take it, do not question the value of the sport in many respects, but base their opposition to it solely on the ground of peril to life and limb, which, as the game is now played, is not an incident of it

but an incorporate and inseparable part of it. Therefore a scientific discussion of its effects upon the physique is a different thing from an estimate of its perils. So many men have been killed, so many have been maimed, so many necks have been broken, ribs torn from their spinal attachments, etc. Such facts speak without labored statistics. It is true, figures show the *relative* danger of football, and according to these figures it is the most dangerous game ever played, not excepting the cruel sports of ancient Rome, and yet in many respects it is one of the best of games. At West Point, where the game was sanctioned by the authorities, notwithstanding the large number of cadets who were injured in match play, it was yet tacitly condemned as an extra-hazardous game by a standing order requiring a surgeon and an attendant with dressings and restoratives to be present at every game, and their services were usually required. During the autumn of 1893, 34 cadets played football and furnished 54 cases of accidents, each serious enough to be taken upon the sick report, or a percentage of 1.6 for each man. Out of 184 cadets under instruction in the riding hall, 17 were injured, a percentage of 0.09 for each man; 106 were taught gymnastics, of whom 9 were injured, a percentage of 0.08 for each man. Dr. W. W. Keen published some comparative statistics concerning football injuries at West Point, from data furnished by myself from the hospital records, in the *Medical News* for March 3 and 24, 1894, which are too voluminous to reproduce here, but which show that the relative dangers of football compared with other forms of athletics are immensely greater.

Nevertheless, conservative men are willing to admit that the game is capable of accomplishing much that is good, such as teaching young men self-control, courage, agility, and quick mental perception, but they are not blind to the fact that this is at the certain cost of painful injuries or death to a proportion of the players, to say nothing of the dangers of overtraining and its consequent evils.

It is desired to avoid a restricted view of the subject and to look impartially at it from all sides, and, looking at it in that way, we ask, What is the object of football? Obviously sport and physical and mental improvement. It is admitted that these objects are laudable and are more or less accomplished by the game.

Now, in the same impartial spirit, let us turn to the other side of the page and consider the price we have paid for the benefits gained. Here we read the assertions of experienced men whose opinions are entitled to respect that "there is no slugging match more brutal or more dangerous to life and limb than football as it is now played";* that "the attendance of a surgeon" (in a game of football) "is as much of a necessity as in a duel."† We read the record in the *Lancet* of twenty-seven deaths in England from football in 1893 and of a multitude of broken bones, dislocations, internal injuries, etc.; and the record in our own daily press of eight deaths in this country due to football during the brief season last fall. We are confronted with the opinion of life-insurance examiners against accepting football players as risks. We note that several schools and colleges last season prohibited the game;‡ that Professor Eliot Norton, of Harvard, maintained that it was only fit for barbarians; and, above all, we can not fail to observe the wave of popular indignation that swept over the country last autumn, set in motion by the deaths and the demoralizing exhibitions of profanity, pugilism, and other forms of brutality witnessed in games of football.

* Editor of the *New York Herald*.

† Dr. Wells.

‡ Kansas Normal School, University of Virginia, and others.

And the foregoing does not end the indictment against the dangers of the game; a volume could be filled with the adverse testimony and warnings that have been written and spoken by all classes in all parts of the country. It certainly appears that the weight of impartial opinion having the good of the rising generation at heart is opposed to football on account of its perils. From this standpoint, in my opinion, the game as played last season is indefensible. It has been tried, convicted, and sentenced at the bar of public opinion, and if it starts again on its career of slaughter it only remains to have it interdicted by the courts.

P. F. HARVEY, M. D.,

Major and Surgeon, U. S. Army.

THE EYE TREATMENT OF EPILEPSY.

NEW YORK, September 16, 1894.

To the Editor of the New York Medical Journal:

SIR: We can not all see through the same glasses; neither do we all think alike in politics, religion, or therapeutics.

On my return from my summer's outing, my attention has been called to a critical but courteous review by Dr. C. A. Wood of an article published by me in your *Journal* (January, 1894) on the Eye Treatment of Epilepsy.

I deem it but just to myself, as well as to those who hold similar views, to reply to some of the points raised in as terse a manner as possible.

I shall endeavor, first, to state what points Dr. Wood makes as antagonistic to the statements that have been advanced relative to the cure of functional nervous diseases by eye treatment. I shall then endeavor to answer each of these points, and to demonstrate, if possible, the inaccuracy of some of his deductions.

Dr. Wood draws the following conclusions:

1. That *heterophoria* (anomalies of adjustment of the eyes) is so common as to be almost universal (ninety-five per cent.).

2. That heterophoria without asthenopia is not worthy of serious recognition.

3. That heterophoria is largely dependent upon errors of refraction (ametropia).

4. That all benefits which have been obtained by tenotomies upon the eye muscles are to be attributed (in part at least) to a "powerful mental effect" upon the patient.

Unless eye symptoms exist, Dr. Wood regards this as the only reasonable explanation of the relief of any nervous phenomena by eye treatment.

5. He accepts the view that in all epileptics who have any eye symptoms (marked or suspected) there is an urgent necessity of an examination both for ametropia and heterophoria.

6. He acknowledges that some of the cures of epilepsy by eye treatment reported by me were due solely to the treatment of the eye muscles.

7. He sustains the view that heterophoria should be investigated after a correction of ametropia has been tried for some time and failed to afford relief.

8. He seems to positively state that true heterophoria can not be cured or "permanently affected by ordering lenses."

He reports a case treated by himself with brilliant results by several graduated tenotomies of the external eye muscles.

9. He expresses the strongest sympathy with the present popular movement against the employment of bromides in epilepsy, until all sources of peripheral irritation have been intelligently sought for and scientifically treated.

10. He criticises me for failing to report the number of my epileptic patients that suffered from asthenopia before the eye treatment was begun.

To sum up Dr. Wood's conclusions, before they are answered

by me *seriatim*, it may be said that he accepts the view (once so actively combated) that the eyes may excite epilepsy, and that eye treatment alone may effect a cure in some cases; that he denies that reflex epileptic seizures can arise from the eyes without the existence of some local eye symptoms; that he believes partial tenotomies upon the eye muscles may cause benefit to epileptics by a "powerful mental effect" in some cases; that he advocates a full correction for refractive errors for a considerable time prior to treatment of the eye muscles; that he rejects the use of prisms for the treatment of heterophoria, preferring graduated tenotomies; and that he is in full accord with the investigation of the eyes and eye muscles before drugs are employed in epilepsy.

It is now about twenty years since the view that the eyes could, and very often did, cause (by reflex irritation of the nerve centers) severe headaches, neuralgias, sleeplessness, St. Vitus's dance, nervous prostration, nervous dyspepsia, epilepsy, insanity, etc., was first promulgated as a basis for the investigation and cure of these conditions.

To those who are familiar with the history of the progress and gradual acceptance of this view by the profession in spite of ridicule, bitter personalities, unconquerable prejudice, etc., it is gratifying to see the leaders of medical thought in this country and Europe falling into line; to observe authors on ophthalmology adding a chapter on eye muscles to their works; to read contributions to its literature from men who, but a few years ago, scoffed at the very thought of eye investigation in patients afflicted with nervous diseases; to notice how many qualifying and modifying statements relative to the causes of obscure nervous phenomena have crept into the leading textbooks; and to have no longer to endure the sad spectacle (so frequently thrust forward in the past) of an incensed and bigoted antagonist, weak in ammunition, trying to defend an untenable position by ridicule instead of argument and personalities in lieu of facts.

That the eye treatment in many serious nervous conditions has to-day a recognized value in the minds of the medical profession it is impossible for any one familiar with current medical literature to deny. It only remains to put such limitations upon its employment as are justified by the clinical experiences of those who have perfected themselves in the later methods of investigation, and who have followed them without prejudice for a sufficient length of time to make their conclusions of value.

I will now endeavor to reply to the criticisms made by Dr. Wood *seriatim*:

1. *Is heterophoria practically universal?* I think not. While it is true that but a small percentage of the human race inherit eyes that are totally free from errors of refraction (emetropia) or errors of adjustment (orthophoria), the anomalous conditions are not sufficiently extreme in quite a large percentage to cause serious nervous disturbances. Again, in a percentage perhaps equally large the heterophoria is so extreme as to entail a deformity (cross-eye) that renders binocular vision impossible.

In these cases the "eye strain" is reduced to a minimum, simply because the *subject is practically a monocular being*.

I have seen in the experience of novices several cases of epilepsy absolutely cured by an extreme overcorrection of what was originally but a slight strabismus; and some startling cases of complete restoration to health by the removal of an eye have come under my observation.

2. *Is heterophoria without asthenopia worthy of recognition as a cause of serious nervous disturbances?*

I would answer this important query of Dr. Wood by saying, in spite of his contrary opinion, most emphatically "Yes."

That heterophoria entails a leakage of nerve force can not well be disputed from a physiological or clinical standpoint. That a leakage of nerve force (when excessive) may cause a nervous bankruptcy is also true. To assert that a nervous bankruptcy may manifest itself in the *weakest part* of a human being so afflicted is neither irrational nor opposed to clinical experience. I have argued this many times. The following quotation from an article written by myself respecting the causes and cure of sleeplessness (*New York Med. Jour.*, March 28, 1891) may be in place here. I say:

"Any expenditure of nervous energy in excess of that generated from day to day (irrespective of where the excessive expenditure occurs) may in time so deplete the reserve capital of nerve force in any individual as to embarrass the workings of some part or parts of the nervous system without any actual disease being present. The result of this temporary 'nervous bankruptcy' is peculiarly apt to disclose itself in some derangement of the normal function of the weakest part—as an echo is heard far from the source of the echo.

"Let us cite, as an apt illustration of what I mean, one of our every-day experiences:

"An upright business man, with a stated income, has, from certain extravagances, etc., spent not only in excess of his income for many years, but has gradually encroached upon his capital. He grows moody, reticent, and irascible, and becomes almost imperceptibly an altered man. His friends, ignorant of the cause of the change, gradually become distant and fewer in number. Social estrangements, domestic unhappiness, a general loss of esteem, and many other complications then begin to arise day by day and month by month, until the individual falls from the high position that he once occupied with warrantable pride. Now, what has caused this fall, and what is the remedy? Unquestionably, to every thinking mind, the initial and underlying factor in all the ultimate results would be the excessive expenditure of money. The cure, moreover, lies in stopping the initial cause, with the hope that time and prudent living will restore not only the impaired business capital, but likewise the cheery nature and honest manhood that originally gained the individual his high position, and that can alone restore it to him."

Two years ago, in the *New York Medical Journal* (June 11 and 18, 1892), I reported a series of very interesting cases of persons subjected to eye treatment alone, who made startling recoveries. In order that the reader may appreciate the diversified character of the symptoms presented by these patients, that (as events proved) were suffering from the same cause—viz., "eye strain"—I take the liberty of quoting one paragraph from this article, and subsequently reporting how many of them suffered from any *local eye symptoms* prior to becoming my patients.

I do this because the scope of a letter would not permit of as many histories as are by this means placed before my readers.

In this article, the detailed histories of eighteen cases being given to show the effects of eye treatment upon them, I say:

"Among the cases reported in this paper are four typical cases of epilepsy; several of nervous prostration of so severe a form as to justify the most serious doubts in any medical man as to a perfect recovery being possible; one case of mental collapse to an extent which rendered the patient unable to dress himself until told which article of apparel to put on first, and who would chew on a bolus of food for an hour, if not told to swallow it; one case of melancholia with morbid impulses, who walked about the streets touching every tree, lamp-post, and ash barrel; one case of epileptic mania, for whose use a room padded with mattresses was kept; several in which confirmed inability to sleep, severe neuralgic paroxysms, car-sick-

ness, constant headache, etc., formed an important feature in their clinical histories; one case of St. Vitus's dance that was followed, before I saw her, by an entire loss of power in the right arm and partial in both legs; one case of terrific neuralgic paroxysms of the face that drugs would not control; and other cases of various conditions that were equally distressing to the patient and that had withstood all therapeutical measures.

"In the light shed upon a field of scientific inquiry by such a set of remarkable cases, is it not a justifiable source of surprise that many oculists of prominence, in full possession of the facts, refuse to-day to follow implicitly, and others even to try, a method of treatment whose details have been quite fully described in medical literature?"

Now, on looking over the records of these eighteen cases, to see which of them suffered from asthenopia (or other eye symptoms) prior to my seeing them as patients, I find that Cases I, II, III, V, VII, VIII, IX, X, XI, XII, XIII, XV, XVI, XVII, and XVIII never had (so far as I know) suffered from their eyes in any way.

In Case I the patient wrote me only last week that "he was perfectly restored to health by the eye treatment." In Cases II, III, and V the patients are now practically cured of epilepsy. In Case IV the patient had asthenopia with his epilepsy. In Case VI the patient had chronic asthenopia. In Cases VII, VIII, IX, X, XI, and XIII the patients had such strong eyes that they were slow to believe that any treatment of them was indicated. In Case XI the patient had never used glasses except for close work, when her accommodation began to fail with age. In Case XIV the patient had a dilated pupil for years, that returned to its normal size after I treated her.

If these eighteen typical cases of "eye strain" do not sustain my answer to the question raised by Dr. Wood, I could bring forward a very large number of later cases that would confirm it still more strongly; but I deem fifteen cases out of eighteen already reported sufficient evidence upon this point to refute the statement that "eye symptoms must exist" before heterophoria can be regarded as a positive cause of nervous derangements.

3. *Is heterophoria largely dependent upon errors of refraction?*

This is the third point upon which Dr. Wood lays great stress.

Personally, I am in the habit of correcting by glasses *all astigmatism fully*, and as *much hypermetropia as I deem capable of toleration by each patient*.

I often allow such glasses to be worn for months before I decide positively respecting the condition of the extrinsic muscles of the eyes; yet I am quite positively convinced that the proportion of cases where the apparent heterophoria exhibited early has been materially modified by this step is quite small except where the ametropia is excessive.

I believe (with Dr. Wood and many others) that the correction of refraction should be the first step in eye treatment of all nervous derangements; that the correcting glasses should be worn constantly; that care should always be taken to watch for and, if necessary, control ciliary spasm by the instillation of atropine for a while after lenses are prescribed; and that the effects of such lenses upon the muscular adjustment of the eyes should be observed and noted.

Yet I am not in accord with those who can not or will not recognize a heterophoria (no matter how extreme the condition may be), but who search after the lowest grades of astigmatism as a vital factor in a nervous patient.

I should not expect, for example, to see a marked case of homonymous or crossed diplopia (with a corresponding lack of

power in the externi or interni) to regain single vision after correcting the refraction, provided a week elapsed after prescribing proper lenses with no marked improvement in the heterophoric condition. Furthermore, the determination of heterophoria is not alone ascertained by the phorometer—as the results of the “exclusion test,” the “Maddox-rod” test, the measurement of power of adduction, abduction, and sursumduction, the effect of prisms worn over the lenses prescribed for refractive anomalies, and many other data are often required before any intelligent conclusions can be reached even by an expert.

4. Finally, the last query of Dr. Wood has to be met.

Can the curative results of tenotomies performed upon the eye muscles justly be regarded as simply evidences of a “powerful mental effect” upon the patient?

This is to me the most difficult point to answer seriously that Dr. Wood has raised. He has collected a large number of reported cases of epilepsy where various operations—such as setons, circumcision, cutting out pieces of flesh, trephining, castration, severe burns, nerve-stretching, etc.—have apparently benefited epileptic subjects. He even goes so far as to recommend the removal of small pieces of flesh from different parts of the body and allowing them to heal by granulation.

I do not know how Dr. Wood performs his tenotomies upon the eye muscles; but it seems to me most absurd to discuss seriously a “powerful mental effect” upon a patient when the step in question causes absolutely no pain, no confinement in the house, and so little mental effect that children often talk to me about their dolls and toys while the step is being performed under the influence of cocaine.

A spanking or a dose of castor oil has ten times the mental effect upon a child prior to and after its application of a graduated tenotomy, yet who would discuss either of these steps as a treatment for epileptic seizures, on account of its “powerful mental effect” upon the patient?

Before we seriously discuss the latter half of Dr. Wood's article, which is entirely composed of a compilation of various surgical steps that have been employed in the past for the relief of epileptic seizures, let me say that I have, from time to time, written strongly concerning the importance of other forms of reflex irritation in epilepsy outside of the eyes.

I have not the slightest doubt that persistent irritation from the nasal cavity, the teeth, the ovaries, the clitoris, the penis, the vulva, the rectum, and scars have excited epileptic seizures. Neither do I think we need hide behind so implausible a theory as “powerful mental impression” to explain reported cures by some of the surgical steps grouped by Dr. Wood as worthy of this explanation alone.

To place trephining, Battey's operation, circumcision, removal of the clitoris, nerve-stretching, the excision of scars, ligature of the vertebral and carotid arteries, castration, and tracheotomy among operations (because in epileptic patients they accomplished good in some case) that are undeserving of recognition except for their “powerful mental effect” upon the patient, seems to me unjust and illogical. It lies with Dr. Wood to prove that a source of reflex irritation was not happily removed in those cases where a cure of epilepsy followed the surgical steps that he so generally turns to ridicule.

Would he have us believe that an ovary when diseased can not excite reflex phenomena; that the removal of retained decomposing smegma beneath a contracted or adherent prepuce is of no account except that “a powerful mental impression” is made by its removal; that chronic masturbation radically cured, or a diseased testicle dispensed with by operation, can not affect the general health directly and possibly cure epilepsy; that an operation upon the clitoris, a fissure of the rectum, or a

hyperæsthetic or diseased vulva can not be of direct and permanent advantage to some poor sufferer from fits; that shutting off excessive blood supply to the brain by a ligature may not (in some rare cases) render that complex organ less susceptible to irritation from local causes; that terminal nerve filaments imprisoned and pinched in a scar can not give relief when freed; and that diseased or ill-fitting teeth may be totally disregarded in treating nervous diseases?

Would it not have been more conservative and logical for Dr. Wood to say, as I do in my article on epilepsy:

“In cases where negative results have been observed in spite of a satisfactory investigation and correction of marked heterophoria and abnormalities of refraction, I would deem it wise before resorting to drugs for epileptic seizures to search for other sources of reflex peripheral irritation (such, for example, as bad teeth, phimosis, rectal or uterine disease, scars, etc.).

“Furthermore, the detection of chronic kidney disease, syphilis, organic brain lesions, and depression of the skull is most important prior to the beginning of eye treatment or a search for other forms of peripheral reflex disturbances.”

Scarcely had the printer's ink dried upon Dr. Wood's critical article than one of the staff of a prominent journal of this city* (who seems to have access at all times to its editorial columns) hastened, with strongly partisan feeling and manifest courage, to take advantage of his anonymous position and indorse Dr. Wood's conclusions in full. He prefaces the reproduction of these conclusions by saying (as his own contribution to the argument):

“There has been beyond doubt a factitious prominence given to the treatment of epilepsy and other nervous disorders by the surgical treatment of the eye muscles.”

It is sometimes amusing to observe how hastily the unthinking partisan grabs at any weapon with which he hopes to wound an antagonist, and with what positiveness all statements are made in anonymous contributions to medical literature.

In concluding this reply to Dr. Wood's article I would express my appreciation of his courteous methods in argument and my gratification at his evident interest in a line of investigation that has to-day many enthusiastic supporters, and that must sooner or later receive the recognition of those who study the ocular apparatus intelligently and without prejudice of patients afflicted with nervous diseases.

AMBROSE L. RANNEY, M. D.

Proceedings of Societies.

AMERICAN ORTHOPÆDIC ASSOCIATION.

Eighth Annual Meeting, held in Washington, D. C., on Tuesday, Wednesday, and Thursday, May 29, 30, and 31, 1894.

The President, Dr. A. M. PHELPS, of New York, in the Chair.

(Continued from page 316.)

Lateral Traction in Hip Disease.—Dr. C. G. PAGE, of Boston, read, by invitation, a paper on this subject. He said that his observations and experiments had led him to believe that lateral traction alone did not give the patient relief. The object of traction was to overcome spasm and “distract,” if possible, the joint. To do this the head of the bone practically was compelled to move in the axis of the neck of the femur.

* *Medical Record*, August 11, 1894.

The point of application of the lateral traction force was necessarily considerably below the head of the femur. So, observers had objected that when lateral traction was applied high up the muscles were shortened, and there was a tendency to draw the bone toward the acetabulum, and so actually increase the intra-articular pressure; but it should be remembered that the muscles became lengthened and adapted to the new condition. He had found that a force of about five pounds of lateral traction should be applied for every ten pounds of longitudinal traction, and that it should be applied at twenty-five degrees beyond a right angle.

The PRESIDENT said that he could indorse most of the views presented in the paper, but he thought the proportion between the two forces should be about two pounds of lateral to eight of longitudinal traction.

Final Results in One Hundred Cases of Operation for Deformity following Hip-joint Disease.—Dr. V. P. GIBNEY, of New York, then read a paper thus entitled. He thought that in some instances it might be better to give less attention to the disease while it was active and more attention to the operative correction of the deformity resulting from the disease. He had had an opportunity to observe for a period of a dozen years the suffering of those in whom hip-joint disease was allowed to run its natural course, and he had also had an opportunity of observing for nearly as many years the result of the use of portative apparatus, so that he felt that he was in a position to view the subject from various standpoints. The author then went on to report a number of illustrative cases and to present in tabulated form the results of his operations, and of the treatment by means of portable splint and the use of the weight and pulley.

Dr. WIRT said that he had had an opportunity of witnessing some of Dr. Gibney's operations and of following the cases some time afterward. He thought the method of treatment by osteotomy was exceedingly useful and capable of giving very satisfactory results.

Dr. SAMUEL KETCH, of New York, said that it seemed to him that the results given in the paper indicated that the use of force in the reduction of deformity was a dangerous practice, and one which, in his opinion, should be abandoned.

Dr. WHITMAN said that the author seemed to be wavering in his belief as to whether it was profitable to prevent these deformities, because it was so easy to correct them after they had occurred. He felt sure that Dr. Gibney was familiar with many neglected cases in which adduction, flexion, and upward dislocation had occurred, and that he was not unmindful of the fact that the latter condition could not be corrected by any operation. If he had understood the author correctly his remarks had been especially aimed against dispensary cases.

Dr. ANSEL E. COOK, of Hartford, then gave the details of two cases in which he had obtained gratifying results from the employment of osteotomy.

Dr. ARTHUR J. GILLETTE asked if Dr. Gibney would operate for the relief of the deformity in cases where sinuses were still discharging.

Dr. GIBNEY replied that he would wait for the sinuses to close, but that he would hasten this process by curetting and cleansing measures. He had long been of the opinion that in some cases where there were acute symptoms and where deformity already existed, it was better not to correct the deformity forcibly, as it was apt to result in the formation of an abscess in some deep and inaccessible part. He wished to place himself on record as unalterably opposed to allowing deformity to develop in any stage of the disease; but where changes had occurred in the shaft and neck of the femur as a result, for example, of the exanthemata, before such cases had come under

observation of the orthopædic surgeon, and where there was a probable fusion of the neck and head with the acetabulum, he thought it better to let the disease run its course. He certainly could not agree with Dr. Ketch in regarding the forcible correction of these deformities as a practice so dangerous that it should be abandoned. There were many cases with acute symptoms where no splint could be applied until the deformity had been corrected. Experience had taught him that it was very important after the correction of the deformity, particularly after the operation of osteotomy, to see that the patient wore a short Thomas splint for a considerable time after the operation.

The PRESIDENT remarked that in nearly all cases the deformity could be overcome by rest in bed and the use of the weight and pulley.

Excision of the Wrist by a New Method.—Dr. HERMAN MYNTER, of Buffalo, read, by invitation, a paper on this subject. He said that as usually practiced excision was resorted to in old and neglected cases in which it was impossible to remove the fatty degenerated and softened bones except in a piecemeal way, thus leaving much tuberculous material behind in the wound. Professor Stuttgart, of Copenhagen, had advocated a new method of making the incision so as to gain a better access to the metacarpus, thus making it possible to remove the bones in one or two large pieces. The operation included a supplementary incision made longitudinally between the third and fourth metacarpal bones. It of course made necessary the ligation of the superficial and deep palmar arches. By this new method it was extremely easy to excise the whole carpus in two portions, and then by packing the cavity with iodoform gauze healing by first intention could be secured. It was not eight weeks since he had performed this operation on a woman, and she was able to extend and flex the wrist and move the fingers.

Osteoclasis.—Dr. F. S. COOLIDGE, of Chicago, then made some remarks on osteoclasis, and demonstrated the action of the Lorenz osteoclast. Lorenz had used it for six years and had obtained most excellent results. The instrument was intended especially for the correction of deformities of the leg. It consisted of two plates, one movable and the other fixed. It was provided with very long handles which gave a tremendous leverage, but owing to the very fine screw thread the power was perfectly under control. The plates were placed at such an angle that during the performance of osteoclasis they would usually be at right angles to the bone at the moment of producing the fracture. With this instrument osteoclasis rivaled osteotomy in its exactness. With this instrument one could fracture the bone in any desired direction and within a small fraction of an inch of the desired point. In most cases the fracture was subperiosteal. The instrument was also useful for correcting the deformity of knock-knee at one sitting without rupturing the ligaments of the knee. After doing this it was proper that the patient should wear a knock-knee brace constantly for about one year, after which a cure would have been effected. There was but very little pain except for the first twenty-four hours after operation. As osteoclasis with this instrument was as exact as osteotomy and without its dangers, the speaker thought that it was the preferable method of treating these cases of deformity.

Dr. T. HALSTED MYERS, of New York, remarked that if it was necessary to wear a knock-knee brace for a year after osteoclasis, there was no advantage in the method over purely mechanical treatment, for by the latter a cure could be effected in the same time.

The PRESIDENT said that if the Rizzoli osteoclast was made sufficiently rigid, it would be found to be one of the best

instruments obtainable. Next to it, in his opinion, came the Grattan osteoclast. He thought osteoclasts should be done in preference to osteotomy wherever possible, but the former was not suitable for producing fractures near a joint. From our knowledge of the pathology and etiology of genu valgum it was hardly to be supposed that the deformity could be removed by osteoclasts without supplementing it with osteotomy or osteoclasts in the shaft of the bone.

Dr. COOLIDGE said he considered the instrument especially suitable for the correction of the anterior and posterior flexions of the knee joint.

Flat-foot.—Dr. ROYAL WHITMAN opened the discussion on this subject. He said that Dr. Shaffer's theory of flat-foot was that it was caused by a primary contraction of the tendo Achillis, but as a matter of fact each individual muscle had been accused at times of being the cause of this affection. In his opinion, most of the theories had mistaken effect for cause. Flat-foot was the result of the relative disproportion between the work performed and the weight to be supported and the strength of the supporting structures. It was most often the result of habitual improper attitude. A flat foot was a dislocated foot, and hence the resistance of the tendo Achillis was often more apparent than real. It also followed from this that if flat-foot was to be cured the dislocation must be reduced and kept reduced. In addition to this, it was, of course, necessary that the balance of power should be regulated by treatment directed to the muscles and to the position assumed by the foot. In his experience flat-foot had proved to be an eminently curable affection, the age of the patient and the duration of the condition being important factors in the prognosis. He did not believe in resort to cutting operations of any kind, as he had never seen them followed by any permanent or satisfactory result. His statements were positive, but they were based on an experience of upward of a thousand cases of flat-foot.

Dr. WEIGEL said that he had obtained very satisfactory results by following Dr. Whitman's method of treatment. He had endeavored to simplify it somewhat in the preparation of the pattern by making this out of three layers of crinoline applied to the foot in strips and dipped in thick plaster-of-Paris cream. From this pattern the plates were cast out of an alloy the chief ingredient of which was phosphor bronze.

Dr. ANSEL E. COOK, of Hartford, said that if the old-fashioned flat-foot springs were properly constructed they would be found to meet every indication of flat-foot.

Dr. WHITMAN said that he objected to these springs very strongly on the ground that they allowed a lateral broadening of the foot, which was something to be especially guarded against.

Dr. COOK replied that the lateral pressure was furnished by the patient's shoe.

Rhachitic Deformity.—Dr. A. JACOBI, of New York, was invited to open this discussion. After sketching the rapid increase of rickets in this country in the past thirty years, as a result of our unrestricted immigration, he remarked that in the future the treatment of rhachitis would be a social as much as a medical problem. He then gave a detailed description of the various lesions and deformities found in cases of rickets. Speaking of the head, he said that it was possible for cranio-tabes to entirely disappear if the rhachitic condition which had induced it had not lasted for a very long time. The frequent occurrence in rickety children of the so-called "Hutchinson teeth" had probably been responsible for the belief among some that all rickets was the result of syphilis. Many cases of so-called "growing pains" were nothing more than examples of rhachitic epiphysitis. It should be remembered that in rickets the muscles suffered as well as the bones, and that both involun-

tary and voluntary muscles were involved. Rhachitic pseudo-paralysis was not a real paralysis, but was simply a marked weakness of the muscles. The heart was usually large in rhachitic subjects, and the arteries small. The muscular coats of the stomach and intestines did not escape the general weakness, and hence constipation and dyspeptic symptoms were often quite prominent.

Dr. BENJAMIN LEE, of Philadelphia, said that, in his opinion, rickets was essentially a failure on the part of the system to assimilate the earthy salts, particularly the salts of calcium. It was a well-established fact that children might be even born rhachitic. Such infants not uncommonly appeared well developed and even robust during the first months of life, and consequently the rhachitic condition was frequently overlooked. Tetany and laryngismus stridulus were common symptoms of rhachitis. Special care was necessary to avoid confounding the early symptoms with those of uncomplicated bronchitis and gastro-enteric catarrh. In conclusion, the author said that rickets, like its congener scurvy of infancy, had been rapidly increasing recently, and he thought this was probably due to the very extensive use of sterilized milk.

Dr. SAMUEL KETCH, of New York, referring to the prevention of deformity, said that one of the most important prophylactic measures was the avoidance of injurious position in early rickets. This was especially true in the stage of tenderness. The portable frames and similar contrivances were very useful in carrying out a postural method of treatment. He emphasized the great value of cautious, systematic, and persistent manual pressure made daily with a view to correcting the milder rhachitic deformities. The medicinal treatment should not be according to any routine plan, but should be adapted to each individual case. In carrying out manual correction, the ease with which the bones could be sprung toward their normal position should be the measure of the force to be employed. Ordinarily the treatment should not be painful, and should only be kept up for a few minutes at a time. It should be a cardinal rule that, as long as the bones were at the stage of softening, mechanical treatment should be persistently followed.

(To be concluded.)

Book Notices.

A Treatise on the Principles and Practice of Medicine; designed for the Use of Practitioners and Students of Medicine. By AUSTIN FLINT, M.D., LL.D., Late Professor of the Principles and Practice of Medicine and of Clinical Medicine in the Bellevue Hospital Medical College, New York, etc. Seventh Edition, thoroughly revised by FREDERICK P. HENRY, A.M., M.D., Professor of the Principles and Practice of Medicine in the Woman's Medical College of Pennsylvania. Philadelphia: Lea Brothers & Co., 1894. Pp. 15-19 to 1143. [Price, \$5.]

It is only a sense of duty to the author of Flint's *Practice*, to myself, to the thousands who have listened to the oral teachings of the late Dr. Flint, and to the tens of thousands who have accepted his great work as a guide in practice since 1866, that leads me to write this notice. As was to be expected, Flint's *Practice*, in the eight years that have passed since the publication of the sixth edition, had reached the end of its commercial success. I am informed that only three copies were sold at the Bellevue Hospital Medical College, where the author taught

medicine for more than a quarter of a century, during the session of 1893-'94. The work had taken its position as a medical classic and remained a fitting monument to the memory of its author. The sixth edition, published in 1886, was revised, practically to the end, by the author's own hand, and represented the last work of his useful and laborious life. It fully represented the condition of medicine at the time of its publication; and it was by far the most complete exponent of the *Principles and Practice of Medicine* of any of the six editions. That the popularity and usefulness of the work were prolonged beyond the life of the author is shown by the fact that nearly ten thousand copies of the last edition were sold within less than eight years. With the publication of the present work, Flint's *Practice* ceases to exist. The work now offered to the profession is neither Flint's *Practice* as it was nor Flint's *Practice* as it should be at the present day. While part of this notice may be regarded rather as an epitaph, I feel sure that the profession will be interested in a brief history of one of the most remarkable medical text-books of this generation.

In January, 1866, the first edition of Flint's *Practice* was issued. Its author was then in the fullness of his powers and was already widely known as a teacher and medical writer. It would seem that the publishers of the work hardly realized its importance and the almost certain prospects of its success. The first edition was manufactured with more than a due regard for economy and was not even stereotyped. Three thousand copies were printed from the actual type. Four months later, a new edition was called for, which was issued in November, 1866; but even in the short time which had elapsed since the issue of the first edition, the author had been able to make important additions and alterations. The other editions followed in 1868, 1873, 1880, and 1886, making a grand total of about fifty-five thousand copies. The work was sold on its merits alone; and its popularity was so great that it hardly seemed to require the elegant dress and attractive illustrations which characterize the best medical books of the present day. Even the edition of 1886 was printed in small type and a large page on light paper and contained only five cheap illustrative woodcuts in the chapters on diseases of the nervous system. While, perhaps, the cheapness of manufacture permitted a small price, which may have contributed to the sale of the book, the dress of the work always seemed to me to be unworthy of its merit, accustomed, as I had been, to the highest grade of mechanical execution by my own publishers. Still, the cheapness of the book had a certain merit, as I have just indicated, and did not interfere with its usefulness until it came to the question of the index to the sixth edition, which I saw through the press. One of the last things done by the author was to enter into an arrangement with Dr. William H. Flint to prepare a careful and complete index. After I had finished reading the proof of the text, I learned that the publishers had directed Dr. William H. Flint to cut down the index one half, on the theory that an additional twenty-five pages would unduly increase the size of the book. I believed and still believe that this seriously impaired the value of the work as a book of ready reference for the busy practitioner, and that twenty-five pages added to the index would have been more useful than the thirty pages of *Classified Catalogue of Medical and Surgical Publications* bound in with the legitimate matter. The index of the sixth edition is, of necessity, woefully imperfect, as it was hastily condensed by cutting out titles here and there. I had hoped that, after the fall trade of 1886 had been supplied, a proper index would be printed, but this was never done.

In preparing the several editions as they were called for, the author found no effort too great and no labor too irksome in his marvelously successful endeavors to keep his great work

fully in accord with progress in medical science. From the first, he built his *Practice of Medicine* upon the solid foundation of sound *Principles*; and the fifth and sixth editions were prepared in epoch-making times, when a revolution was taking place in medical pathology, involving labor which might well have appalled a younger brain. The author was one of the first to recognize and accept the new pathology of tuberculosis, advanced by Koch, and he eagerly followed the remarkable discoveries in bacteriology which have had such an important influence on the principles of medicine and rational therapeutics. At an age and with a training which rendered it impossible for him to study practically the subject of bacteriology, he recognized the necessity of bringing the section of his book on *Principles* fully up to the times and his inability to do this unaided. In the preparation of the fifth edition, published in 1880, he secured the collaboration of Professor William H. Welch, now of the Johns Hopkins University, who wrote nearly all of the section on Principles of Medicine and the descriptions of the anatomical characters of individual diseases. Professor Welch collaborated even more largely in the preparation of the sixth edition. I need hardly say that there is no more competent authority on the subject of pathology, and Professor Welch's contributions supplied the single possible defect in Flint's *Practice*.

I shall say nothing further about the original *Practice*. Its merits and defects are already well known to the profession; and it has filled a measure of usefulness which has been granted to few works on the subject of which it treated. If I have said that the book just issued is not a proper seventh edition, I am bound to give some reasons for such a statement.

In the first place, the book can not claim the title of *Principles and Practice of Medicine*, which appears on the title-page. Part I of the sixth edition, on Principles of Medicine, or General Pathology, covering eighty six pages, has been cut out bodily. Had the author lived to prepare a seventh edition, the principles of medicine would undoubtedly have been put forward with increased prominence, as the bearing of recent discoveries on special pathology and scientific therapeutics is constantly increasing in importance. I can well understand how Professor Welch may have been unwilling to revise this part of the work in view of the circumstances under which it was to be published, and other competent pathologists may have been unavailable; but it is to be hoped, for the credit of the publishers, that they did not solve the question of revising the part on General Pathology by the simple process of omitting it, without making every effort to secure its revision by a competent authority on that subject. The elimination of this part rendered the task of revision of the rest of the book very easy, and its execution economical and rapid.

In looking over the different editions prepared by the author, I do not find any that were revised in the manner adopted in the book just published. The old stereotyped plates have been used to an extent that I should have thought impossible. Of course entire pages are available with simply an alteration in numbering; but parts of pages have been worked in most freely, and yet the letter-press looks fairly well. Many new diseases have been introduced, and the article on dyspepsia has been rewritten. Additions and modifications have also been made in the parts treating of therapeutics, but all additions are in brackets and signed with the letter H.

I can not but regard the publication of this book with the deepest chagrin. After I had failed to obtain control of the work for the purpose of securing a revision in accordance with what I believed to be the settled plan of the author, I was assured—not by the publishers—that no revision would be permitted, and I hoped that the work would remain as a classic monument to

the author and to his devotion to the medical profession. I feel sure that the profession will share my disappointment; for whatever success the book may have, it will be evident that the title, *Flint's Practice*, is now simply a sort of trademark supposed to have a certain commercial value, and that it does not represent the work which has contributed so largely to the education and guidance of American physicians for the past twenty-seven years. Practically, the sixth edition, issued in 1886, is a much more valuable and useful work than the book just published.

In what I have written, I do not intend to reflect in any way upon Dr. Henry, and I abstain from any criticism of his work. Dr. Henry not having absolute control of the revision, I can well understand the difficulties under which he has labored. My own experience in regard to the index of the sixth edition enables me to understand his position. He has done as well as could be expected.

I wish, also, to disclaim any intentional reflection on the well-known and successful publishing house by which the book has been issued. This house, of course, publishes medical books as a matter of business and not of sentiment. The house was entitled to use every means they considered proper to secure a revision of a popular publication, and there can be no reason that is not sentimental why the commercial progress of a successful book should be arrested by the death of its author. I could not expect that the long traditions of this house would permit the firm to recognize my moral right to control *Flint's Practice*; but it is fair to say that, while these traditions involve business instincts and habits which have carried the firm to the highest pinnacle of pecuniary success, they also involve a scrupulous fairness and courtesy in all business relations. As regards the book now under consideration, it remains to be seen whether the profession will take the commercial side, of the publishers, or the sentimental side, of the writer of this notice. I feel it my duty to emphatically disclaim all responsibility for *Flint's Practice* in its present form.

AUSTIN FLINT.

A Handbook of Medical Microscopy for Students and General Practitioners, including Chapters on Bacteriology, Neoplasms, and Urinary Examinations. By JAMES E. REEVES, M. D., Member of the Association of American Physicians; Ex-President of the American Public Health Association, etc. With a Glossary and Numerous Illustrations (partly in colors). Philadelphia: P. Blakiston, Son, & Co., 1894. Pp. xv-17 to 237. [Price, \$2.50.]

THIS is the most pleasing little work of its character that we have seen. Pleasing because of its freshness and the vivacity of the author's style, but, above all, because it is calculated to encourage beginners in microscopy by leading them over the rough places and difficult spots with a confidence and general spirit of cheeriness seldom seen in purely technical manuals.

But, above all, it is valuable as showing to those who were graduated before the time when our medical colleges had developed their present extraordinary facilities for laboratory teaching, that they too can, with perseverance and the necessary enthusiasm, acquire all the knowledge and skill requisite for a practitioner in order to do his full duty by his patients—*i. e.*, to give them the benefit of the present resources of our profession. The author points out very plainly, and illustrates from his own experience, what is required of a conscientious physician by his duty to the patient and to medical science. His own high ideal of the duties of the practitioner of the healing art is evident throughout the book, and should and must be inspiring to others working in the same field and under the same disadvantages that he has struggled with and mastered.

He begins his little volume with an introduction wherein he explains, and illustrates with a number of interesting and most instructive cases from his own private and consulting practice, the importance of the microscope as an aid to diagnosis. And the very first case, one concerning an unmarried woman who suffered from unaccountable asthenia, anæmia, genital irritation, etc., but upon the nature of the cause of whose malady he threw the "calcium light of truth" by discovering numerous spermatozooids in her urine, is an *argumentum ad hominem* that would scarcely be gainsaid by the stoutest opponent. His other cases are equally interesting and convincing. Especially so are the instances in which it was necessary to discriminate between the paludal and other fevers. We might perhaps question the validity of his statement that pulmonary tuberculosis can be diagnosed *always* by microscopic examination of the sputa before the determination of its nature by symptoms and physical signs is possible. We have not found it so in practice, but, as the author truly observes, there are many causes of error, even the physical state of the observer, let alone want of perfection in technique, trouble with the lenses or light, and so on, leading those of far greater skill than the reviewer can lay claim to to overlook important objects. In private practice, no doubt, the lack of a sufficient number of observations may sometimes be the reason of our failure to discover what we otherwise might, especially in chronic renal and in incipient tubercular disease.

Klebs, however, in his recent monograph on *The Causal Treatment of Tuberculosis*, would, we think, not allege so much as our author in this regard. Klebs would, rather, seek, by trial of hypodermic injections of tuberculocidin, to establish the presence or absence of tubercle bacilli in the body.

The author's description of apparatus is good, and his advice to beginners as to what their outfit should be is valuable as coming from one who has worked his own way through and seems, also, to appreciate the need of economy felt by so many practitioners whose work is hard and not to the highest degree remunerative. In his account of reagents, their preparation and how to use them, he is concise and very plain, not lumbering his text with too much verbosity or with the description of obsolete stains or methods. The same may be said of his description of the bacteria, which he takes from Magnin and Sternberg. It is short, clear, and intelligible.

After giving all necessary directions for the examination of sputa, tissues, etc., Dr. Reeves gives us an admirable chapter of instruction in the examination of urine. He does not, perhaps, say enough about the question of specific gravity and the diurnal variations, though not at all neglecting these subjects; but he gives us, what we like to see in these days when there is so much temptation to seek after new gods, a quotation from our old friend Sir Thomas Watson, a glimpse of whom always gladdens the hearts of the students of former days. And the author is not astray in giving such high praise to the publishers of his book, for it is certainly very beautifully printed, bound, and illustrated.

We do not hesitate to recommend it, particularly to those for whom the author evidently designed it more particularly, those who, in the absence of a laboratory to learn in, feel the need of a simple handbook as a guide to their work.

Human Physiology. By JOHN THORNTON, M. A., etc. With Two Hundred and Sixty-eight Illustrations, some colored. New York: Longmans, Green, & Co., 1894. Pp. 436. [Price, \$1.50.]

THIS is a university book, we should say, as regards its classification.

Too technical for high schools, it is, though far more advanced than some of the text-books used in our medical colleges twenty years ago, not up to the standard of those of the present day. But as an "advanced science manual" its excellences are many and its blemishes few. The text is far more lucid than is common with school books of physiology or on any of the cognate natural sciences, showing that the author thoroughly mastered his subject before he began to write, and did not cram to write a text-book, or seek for facts or opinions to uphold theories in regard to prohibition or other fanatical and non-scientific ideas, as is too often done to-day, to the great injury of the cause of education. Mr. Thornton has especially distinguished himself as a teacher by the histological chapters in the first part of his work. It is a great pleasure to go over it with his beautiful and numerous illustrations. And we can not say much less for the subsequent chapters, until we come to the nervous system, where we must pause more to sympathize with than to criticise him, for the subject is so notoriously difficult that it is a bugbear even to those who have had a year or two of preliminary training in a medical school. If we might, without derogating from the good impression which we wish to convey of the work before us, make a suggestion, it would be that a less elaborate account of the physiological anatomy of the nervous system would be more useful even to the advanced student. The intricate diagrammatic drawings of Meynert, which are to anatomy almost what the efforts of Turner are to art, do not seem to us to be in any way appropriate to such a work as this. We would also suggest that the drawing of a longitudinal section of the encephalon gives rather a false idea of the relations of the fornix and an entirely erroneous view of the Sylvian aqueduct.

The cuts taken from Gray and Keen, but to our surprise (and probably through some oversight) not credited, and the beautiful copies of the superb drawings of Hirschfeldt and Leveillé (duly credited), are carefully selected and well described, and would about suffice for the purposes of the average student. We would also, in all kindness, express our surprise that the author allowed himself to be deluded into accepting such a drawing as that of the stomach and annexa on page 184.

The very neat and instructive figures on page 63, representing the minute anatomy of the conjunctival sensory nerves in man, have, unfortunately, suffered a transposition of the letters of description.

We take the liberty of thus freely discussing this work because we admire it as the best of its class, and wish for still greater merit in its future editions.

Les medecins grecs à Rome. Par MAURICE ALBERT. Paris: Hachette et cie., 1894. Pp. x to 323.

THIS is an able and comprehensive history of medicine from the advent of the first Greek physician in Rome, about the year 219 B. C., and embracing a period of six centuries. The work shows most careful research and profound knowledge, and, while to physicians it is chiefly of scientific and historical value, the clearness of the composition and the purity and ease of the style will cause it to be read with great interest by many persons outside the profession.

BOOKS, ETC., RECEIVED.

A Text-book of Practical Therapeutics, with Especial Reference to the Application of Remedial Measures to Disease and their Employment upon a Rational Basis. By Hobart Amory Hare, M. D., B. Sc., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia, etc.

Fourth Edition, enlarged and thoroughly revised. Philadelphia: Lea Brothers & Co., 1894. Pp. 11-17 to 740.

A Practical Manual of Mental Medicine. By Dr. E. Regis, formerly Chief of Clinique of Mental Diseases, Faculty of Medicine, Paris, etc. With a Preface by M. Benjamin Ball, Clinical Professor of Mental Diseases, Faculty of Medicine, Paris. Second Edition, thoroughly revised and largely rewritten. Authorized Translation by H. M. Bannister, A. M., M. D., Late Senior Assistant Physician, Illinois Eastern Hospital for the Insane, etc. With Introduction by the Author. Utica, N. Y.: Press of the *American Journal of Insanity*. Pp. xvi-692.

Lehrbuch der speciellen pathologischen Anatomie. Von Dr. Johannes Orth, Ord. Professor der allgem. Pathologie und patholog. Anatomie, Director des patholog. Instituts in Göttingen. Achte Lieferung. (Ergänzungsband, 11. Theil.) (Hautkrankheiten, bearbeitet von Dr. P. G. Unna.) Mit 1 chromolithogr. Quarttafel. Berlin: August Hirschwald, 1894. Pp. xxix-1225.

Chemistry: General, Medical, and Pharmaceutical, including the Chemistry of the U. S. Pharmacopœia. A Manual on the General Principles of the Science and their Applications in Medicine and Pharmacy. By John Attfield, F. R. S., Professor of Practical Chemistry to the Pharmaceutical Society of Great Britain, etc. Fourteenth Edition. Philadelphia: Lea Brothers and Co., 1894. Pp. xx-13 to 794. [Price, \$2.75.]

A Practical Treatise on Orthopædic Surgery. Designed for the Use of Students and Practitioners. By James K. Young, M. D., Instructor in Orthopædic Surgery, University of Pennsylvania, etc. Illustrated with Two Hundred and Eighty-five Woodcuts. Philadelphia: Lea Brothers and Co., 1894. Pp. viii-17 to 446. [Price, \$4.]

A Manual of Hygiene. By Mary Taylor Bissell, M. D., Professor of Hygiene in the Woman's Medical College of the New York Infirmary for Women and Children. New York: The Baker and Taylor Co. Pp. xii-338. [Price, \$2.]

The Treatment of Obesity. By Thor Moeller, M. D., Chicago. [Reprinted from the *Chicago Medical Recorder*.]

A Case of Primary Tuberculosis of the Female Bladder diagnosed by Howard Kelly's New Method of Direct Inspection with Large Endoscopes. By W. L. Burrage, M. D., Boston. [Reprinted from the *Boston Medical and Surgical Journal*.]

Pathology of Cancer. By H. E. Munn, M. D., Toledo, Ohio. [Reprinted from the *Toledo Medical Compend*.]

External Perineal Urethrotomy. By H. W. Rand, M. D. [Reprinted from the *Brooklyn Medical Journal*.]

La présence d'infusoires dans le sang des palustres, la vraie nature des protozoaires malariques décrits jusqu'ici et les idées des anciens médecins grecs sur le paludisme. Communication préliminaire faite à la Société médicale d'Athènes dans la séance du 7, 19 mai 1894. Par le docteur Jacques Thompoulos.

Transactions of the Michigan State Medical Society for the Year 1894. Volume XVIII.

Transactions of the Forty-ninth Annual Meeting of the Ohio State Medical Society, held at Zanesville, May 16, 17, and 18, 1894.

Thirtieth Report of the Trustees of the Boston City Hospital; with Report of the Superintendent, the Medical and Surgical Statistics, Rules for Admissions and Discharges, Prospectus of Training School for Nurses, Rules for the Convalescent Home, etc., for the Year February 1, 1893, to January 31, 1894.

La faune des cadavres. Application de l'entomologie à la médecine légale. Par Mégnin, membre de l'Académie de médecine. Paris: G. Masson, 1894. [*Encyclopédie scientifique des aide-mémoire*.]

Transactions of the Grant Medical College Society, Bombay, from January to December, 1893.

Eighteenth Year Book of the New York State Reformatory, Elmira, N. Y. Containing the Annual Report of the Board of Managers for the Year ending September 30, 1893.

Transactions of the Texas State Medical Association. Twenty-sixth Annual Session, held at Austin, Tex., April 24, 25, 26, and 27, 1894.

Illumination and Examination of the Anterior and Posterior Nasal Cavities. By D. Braden Kyle, M. D., Philadelphia. [Reprinted from the *Medical News*.]

The Ætiology, Pathology, and Treatment of Ozæna. By D. Braden Kyle, M. D., Philadelphia. [Reprinted from the *Medical News*.]

L'Ichthyol dans le traitement des uréthrites et des cystites. Par le Docteur Roberto Villetti. [Institut de Pharmacologie expérimental de la R. Université de Rome.]

Ueber die Anwendung des Ichthyols bei Wunddruck der Fusse. Von Dr. Leopold Herz. [Aus dem *Aerztlichen Central-Anzeiger*.]

Appunti sull' azione fisiologica e terapeutica dell' ittiolo. Pel Dott. Angelo Ceconi. [Estratto dalla *Gazzetta degli Ospedali e delle Cliniche*.]

Psorospemosis Cutis. Von Dr. A. Ravogli, Cincinnati. [Sonder-Abdruck aus *Monatshefte für praktische Dermatologie*.]

Ueber die Beziehungen des Ekzems zu den Schleimhäuten. Von Dr. von Sehlen, Hannover. [Sonder-Abdruck aus *Monatshefte für praktische Dermatologie*.]

Miscellany.

The Soldier's Minor Ills.—The *Journal des praticiens* for September 5th publishes an article on this subject by M. A. Vignol, who says that all is not a bed of roses in the army, especially in the beginning of the career. There, as elsewhere, the apprenticeship is a rude and painful period during which it is not the morals alone that suffer. Military service exacts an amount of work and a special kind of fatigue to which the organism must become accustomed, and this physical submission is not obtained without damage, happily not of a serious nature; indispositions occur oftener than disease. Some are provoked by, but do not have their origin in, the service. Others are of an essentially military origin, and these are the small miseries of the service: accidents attending horseback riding and accidents peculiar to the foot-soldier. The equestrian education among the majority of young cavalymen is remarkable for the appearance of various cutaneous accidents which are designated under the general term excoriations. Seams and creases in the underclothing, stiffness of the saddle, and the movements of the horse are all ordinary agents in the production of these wounds. The variable sensitiveness of the skin is also a cause not to be overlooked. These wounds very often become infected from soiled clothing and from scratching them with the fingers, and this fact explains the many troubles which follow these lesions, in themselves insignificant.

The proportion of young cavalymen who are thus injured in the course of the first months of the service is about fifty per cent. Among some the skin is galled once, but in others from two to four times, and these successive excoriations are always less serious than the first, because the men, warned by their first experience, do not wait for medical attendance until it is too late. Furuncle is observed in a third of the cases, and diffuse lymphangitis once in ten cases. With regard to the

duration of the treatment, nothing is more uncertain. From four to five days are sufficient for simple excoriations; but successive furunculous crops may entail a month or more of absence from duty.

The natural protuberances of the feet and the folds of the socks determine the places for these wounds. They are more frequently found on the ankles, on the insertion of the tendo Achillis, near the head of the first metatarsal bone, and on the instep. Sometimes a blister marks the beginning of the lesion, which may be arrested if taken in time; if not, the blister breaks, the raised epidermis is torn away, and the derma is thus exposed. Although these injuries are not so large as those of the cavalymen, they are always more profound. The best treatment for a blister is complete rest without any other intervention. The effusion becomes absorbed, and the epidermis grows again and forms an occlusive dressing up to the time of its being shed.

Hyperidrosis of the feet is not especially a military affection, but it is certain that the long and frequent marches and the wearing of heavy and air-tight shoes exaggerate it when it does exist. In extreme cases there is nothing to do but take complete rest; the least intense cases are amenable to treatment; amelioration is certain, and recovery is possible. When the infirmity becomes reduced to an exaggerated moisture, which is perceptible only in summer or after long marches, lotions of lead-water or vinegar and water will be sufficient. They must be repeated night and morning for several days and the feet powdered with salicylated talc or starch with tannic acid. In the more intense cases, where the epidermis whitens and scales on the least fatigue, a more energetic intervention is necessary. The simplest and the best is iron perchloride applied with a brush on the sole of the foot and between the toes. Where there are marked fissures, it is prudent to mix with the iron a third of its weight of glycerin. After this liquid is applied, the feet must be exposed to the air for about fifteen minutes to allow it to dry thoroughly. This method should be employed once a month from the beginning of the treatment; after amelioration sets in, less frequently. This affection usually disappears during the second year of service; at least, it is always very much diminished.

The last, in order of frequency, of the accidents due to long marches, is ingrowing nail. Since pointed shoes have grown fashionable, the great-toe nail has become more or less deviated and pressed upon by the other toes. In time, the external crease on the ungual matrix of the great toe is cut by the sharp edge of the nail, and this fissure, which is deep enough to draw blood, is painful. If it is neglected or badly attended to, ingrowing nail is the result. The treatment is very simple. It is sufficient to pare a little of the external edge of the nail in order to give the epidermis of the matrix the requisite callosity. A little lint rolled in powdered tannin and slipped under the nail is often sufficient. If the lesion resists, the bits of lint must be moistened with the iron perchloride and glycerin. A crust forms, the fall of which leaves the ungual groove larger and less sensitive to pressure. Insignificant in itself, this little accident requires rather particular care. It will occur again easily, and exacts watchful care on the part of the patient and also the physician.

Another order of accidents includes horse-bites and contusions of the toes and fingers, accidents which it is impossible to avoid when in constant contact with horses, that so often have the bad habit of nibbling everything that comes in their way; and the men do not always escape. On the broad or fleshy parts of the body these bites betray themselves by a double ecchymosis. When a horse seizes a man's hand or finger, instinctively the man draws back, consequently the skin is easily

torn away. At the end of the finger there is to be seen a deep incision, the nail is raised, and subungual ecchymosis sets in. Although not more serious than the others, this latter accident is one from which recovery is very slow, and it takes from four to five weeks for the injured nail to fall off and be replaced by a new one.

The Treatment of Cystitis in Women.—The *Revue internationale de médecine et de chirurgie pratiques* for August 25th contains an abstract of a review of a work on this subject by Dr. Lutaud, which appeared in the *Journal de médecine de Paris*. The author remarks that the treatment of cystitis in women presents important characteristics, not only because the ætiology of the affection is distinct, but because it often occurs with remarkable suddenness and acuteness. This inflammation is often the consequence of confinement or of the traumatism of an operation. Sometimes a very insignificant matter will cause it, such as the application of a tampon of gauze or wadding to the neck of the uterus, which induces a very painful vesical tenesmus. There are two distinct varieties, the acute and the chronic. In the former, the first indication consists in quieting the tenesmus and the pain. The medication is above all local; sedatives are used, opium and belladonna being especially indicated. The following suppositories are prescribed: Morphine hydrochloride, cocaine hydrochloride, each, three twentieths of a grain; extract of belladonna, three fortieths of a grain; cacao butter, forty-five grains. One of these should be used every four hours until the tenesmus and the pain have disappeared. Belladonna may be replaced by hyoscyamus if morphine or opiates are not well borne, and the following formula substituted: Cocaine hydrochloride, three twentieths of a grain; extract of hyoscyamus, three tenths of a grain; cacao butter, forty-five grains. Three or four of these suppositories may be employed during twenty-four hours. Rectal injections of laudanum are very useful. If there is insomnia, chloral may be given, always in enemata, and the minimum dose should be sixty grains for an adult. This formula is advised: Chloral hydrate, sixty grains; yolk of an egg; water or milk, two ounces and a half. Hypodermic injections of three twentieths of a grain of morphine are still better for quieting the paroxysms of pain. Poultices, hip baths, and fomentations on the hypogastrium are useful adjuvants to the local treatment, which is to be preferred to general treatment during the acute period. Topical applications and anodynes may also be applied in the vagina. When it is a question of combating inflammation of the neck of the bladder, belladonna or cocaine may be employed as follows: Camphorated lanolin, four hundred and fifty grains; extract of belladonna, thirty grains. This is spread on a tampon of wadding and introduced night and morning into the vagina. When the pain is very sharp, a small tampon of wadding saturated with a solution of fifteen grains of cocaine hydrochloride in three hundred grains of distilled water may be employed. Treatment by the stomach should be cautiously employed during this period. Aside from hypnotics, there are very few remedies to suggest. No benefit is obtained from balsams. Oxalic acid has given the author only doubtful results in women, especially during the acute period, although he has seen painful symptoms ameliorated by the prolonged use of the following mixture: Oxalic acid, eight grains; syrup of bitter orange peel, four hundred and fifty grains; distilled water, three ounces. A dessertspoonful of this is to be taken every four hours.

During the chronic period local and general medication must be employed at the same time. When inflammatory and painful symptoms are diminished, intravesical medication may be applied and afterward irrigation. A rubber or a glass probe,

perfectly aseptic, is introduced, and to the end of it a syringe, holding from three to four ounces, is attached. Antiseptic solutions are used in preference, such as: Boric acid, six hundred grains; sodium borate, seventy-five grains; distilled water, a pint and a half. A rapid jet should be pushed through the syringe, which is then drawn away to allow the liquid to escape. Not more than an ounce and a half should be injected at a time, and it is still better, when the bladder is irritated, not to inject more than an ounce. Dr. Lutaud does not advise injections of nitrate of silver; he prefers iodoform, the action of which is more efficacious, especially in cystitis of blennorrhagic origin. He employs the following method: Washing with a solution of boric acid, first, then an injection of four ounces of tepid water to which has been added a teaspoonful of the following emulsion: Powdered iodoform, four hundred and fifty grains; glycerin, six hundred grains; distilled water, three hundred grains; tragacanth, four grains. Blue pyocetanin has been suggested by Neucki, of Warsaw, in injections, for blennorrhagic cystitis. As with all vesical injections in women, it should not be used except in chronic cystitis. Dr. Lutaud has obtained good results with the following solution: Blue pyocetanin, fifteen grains; boiled distilled water, a pint and a half. This is to be injected night and morning, and its use should be continued, if it is well borne, during a period of from ten to fifteen days. General medication is useful in chronic cystitis. Dr. Lutaud has had occasion to try pichi (*Fabiana imbricata*) in cystitis following gonorrhœa in women, and obtained good results. The following mixture was prescribed: Extract of pichi, one hundred and fifty grains; tincture of *Cannabis indica*, thirty grains; linden water, three ounces and three quarters. A dessertspoonful of this is to be taken every four hours. Another formula, in which buchu is associated with hyoscyamus and ammonium bromide, is the following: Ammonium bromide, one hundred and fifty grains; tincture of hyoscyamus, seventy-five grains; fluid extract of buchu, one hundred and fifty grains; distilled water, two ounces. A teaspoonful is to be taken every four hours. If there is pus in the urine, the following drink is prescribed: Benzoic acid, fifteen grains; orange-flower water, an ounce and a half; boiled water, twenty-eight ounces; sugar, three ounces. This is to be taken by the glassful between meals.

It should not be forgotten that cystitis may have a tuberculous origin, and that it may be due to calculi or produced by tumors. In this case, the treatment should be subject to various modifications.

The Diphtheria Antitoxine.—In an editorial the *North American Practitioner* says: "We all remember the extravagant claims put forth, not by Koch so much as by his followers, with reference to *tuberculin*, and, while we are open to conviction, we still will wait until the evidence 'is all in' before pronouncing for or against *antitoxine*. We certainly have cause for profound solicitude, as we behold from year to year the increased prevalence of this disease, both in Europe and in America, and if by Jennerian and Pasteurian methods the means for its control shall come to our hands, another boon hardly less than that of vaccination will be this contribution from the profession of medicine for the well-being of mankind. In London alone during the past year the mortality from diphtheria numbered 3,265. On both continents its prevalence and its mortality are assuming alarming proportions. If in any measure antitoxine shall prove an added weapon in this great conflict, by so much as it shall serve to control and cure diphtheria by so much will its value be beyond expression. While we hold ourselves wide open to conviction, we are by no means sanguine. *Nous verrons!*"

Original Communications.

A STUDY OF CHILD GROWTH,

BEING A REVIEW OF
THE WORK OF DR. WILLIAM TOWNSEND PORTER,
OF ST. LOUIS.

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It is a thankless task to relate what everybody knows. The only excuse for such a procedure lies in the use of well-known facts in a new argument. It is far from my mind to present this or any other subject without a purpose, which it seems to me ought to be accomplished, and into the accomplishment of which my whole energy is thrown. There are those who think that scholarship and science are incompatible with the function of the reformer. By a reformer these philosophers mean a person who is anxious to secure the realization of logical inferences from scientific facts. If such is the case, and a choice of one must be made to the exclusion of the other, many would willingly sacrifice their claims to be classed as scholars or scientists.

Dr. William Townsend Porter has lately published a study of the growth of the St. Louis school children,* which contains many facts interesting to medical men. It is unnecessary to give an outline of the work of collection further than to say that a full list of anthropometric and anthropological data was secured through the co-operation of the pupils, the parents, and the teachers of the public schools, and a large number of medical students and physicians. The more technical work was done by the students and physicians; 34,354 children were examined—16,295 boys and 18,059 girls—all between the ages of six and twenty-one years. Nearly a million data were secured. These were studied by the help of a clerical force supplied by public-spirited citizens of St. Louis. The results have not all been published yet, and we await with much interest the unpublished tables. The tests for the acuteness of hearing could not be satisfactorily conducted on account of the noise in adjoining schoolrooms, and they were abandoned after several thousand children had been tested. "It was noticed that the number possessing less than the normal acuteness of hearing was very large, and more than one pupil was found who had been punished for inattention, the result of an unrecognized deafness." It should be remembered in this connection that Dr. E. Schwartze gives statistics showing that about twenty per cent. of all school children are considerably under the normal in hearing.

Should it be desired to make a study of the growth of the children in any community, two methods suggest themselves: (1) A number of infants could be selected and measured many times at regular intervals until they arrived at maturity. Then, by comparing these measurements, a mean value could be secured and a probable deviation from this mean could easily be deduced. Such a study of individuals through a long time, however, presents insurmount-

able obstacles. Some of the children would surely die and some would otherwise escape the observer, and, consequently, much of his labor would be lost. Few out of many observers undertaking this problem would be able to see its completion. (2) Again, many individuals of every age could be measured once, and from these data the growth of the average child predicted. This method has the advantage of expedition. It is the method selected by Porter. The public schools contain a sufficient number of children, and among them are found almost the proportional number from each class of people. Thus 2,000 St. Louis children were selected, and it was found that 76 were the children of professional men, 579 of men of the mercantile class, 1,086 of men engaged in the manual trades, 216 of laborers, and 43 were the children of fathers classed under the heading of miscellaneous.

The accompanying table shows that the daughters of the privileged classes are considerably heavier than the daughters of manual laborers.

What is true of weight is also true of the physical development of these girls as a whole. There is little difference between the daughters of the two social classes until approaching puberty. It is unfortunate that a great number of children of manual tradesmen drop out of school at about the age of puberty. The shops and factories claim them. It may be that the larger girls, daughters of laborers, get into factories, while the smaller remain in school. If this is the case, these measurements should be corrected by the measurement of factory children and shop girls and boys. What a comment it is, anyway, upon our vaunted civilization that a whole class of girls, and this the larger

class, is stunted in their growth by social environment or the necessities of social conditions! But this is not all. The public schools ought to give to every child a complete education, in order to secure from all their highest usefulness for the community. It is developed incidentally that children of manual tradesmen are a much larger percentage in the lower grades than in the higher. Thus, of five hun-

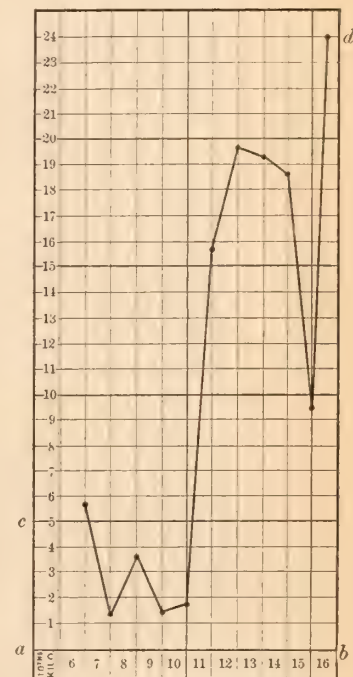


CHART I.—Comparison of the average weight of the daughters of manual tradesmen (represented by the heavy base line *a b*) with the average weight of the daughters of professional men and merchants (represented by the curve *c d*) for each year of life between six and sixteen, given in tenths of a kilogramme. At six years the daughters of the privileged classes weigh 0.55 kilogramme more than the daughters of manual tradesmen. This difference rises to 1.85 kilogramme, or four pounds, at twelve years.

* *Trans. of the Acad. of Sci., St. Louis*, vi, 12. Issued April 14, 1894.

dred and sixty-two boys aged six, 17·8 per cent. were sons of the privileged classes and 42·9 per cent. were the sons of manual tradesmen, while at the age of fourteen 29·3 per cent. of four hundred and ninety-eight boys were from the former, and thirty-seven per cent. were from the latter class. This, doubtless, means that growing boys are taken out of school at twelve and thirteen and put to work in the industries of St. Louis to drive out an equal number of men engaged in these trades into enforced idleness. Or it may mean that from some other cause boys leave school before fifteen. Earle Barnes, of Leland Stanford Junior University, has suggested that the difficulty which so many boys have with their female teachers in the sixth and subsequent grades of the public schools is due to their unrecognized oncoming sexuality. . . . Such boys love contact with women. Even a whipping from the hands of a woman, or a tongue lashing, is to them a choice delight. Combine with this the natural supremacy and superiority of girls aged eleven to sixteen, both physically and mentally, over boys of the same age, and the utter ignorance of teachers and parents of these two facts, and there appears a cause adequate to remove the boys not only of the poor but of the rich from the unthinking tutelage of women. That this removal is disastrous to the education of a large percentage of the boys every one will admit. A better solution of this problem than an offhand reference to the desire of boys to work or learn business and the greed or necessity of parents would perhaps be found in a consideration of these two facts and the logical result of this consideration—namely, separation of boys and girls in the public schools during the period of prepubertal acceleration, with male teachers for the boys and female teachers for the girls.

The children of foreign birth in St. Louis were entirely too few to affect the result of this investigation. It is, however, to be remembered that the children in different countries, States, and cities are not uniform in their growth. The nativity of the children is given in the accompanying table :

The Birthplaces of 46,873 Pupils in the St. Louis Public Schools.

St. Louis.....	79·26 per cent.
Other parts of the United States.....	16·92 “
Great Britain.....	0·63 “
Ireland.....	0·19 “
German States.....	1·97 “
Other foreign countries.....	0·87 “
Unknown.....	0·16 “
Total.....	100·00 “

The children of foreign-born parents are, of course, much more numerous. The medium weight of children of German parents is compared with that of children of American parents in the accompanying table.

The difference in weight is seen to be of no great importance. The children of American parents are a trifle lighter.

When the curves of growth in weight, height standing, height sitting, span of arms, and girth of chest are drawn on a system of co-ordinates, as has been done for height standing in Chart II, the attention is at once arrested by the extraordinary difference in the development of girls and

THE WEIGHT OF GIRLS WHOSE PARENTS WERE BORN IN GERMANY COMPARED WITH THE WEIGHT OF GIRLS WHOSE PARENTS WERE BORN IN AMERICA.

AGE AT NEAREST BIRTHDAY.	GERMAN.		AMERICAN.	
	Number of observations.	Medium weight, kilogrammes.	Number of observations.	Medium weight, kilogrammes.
Six.....	310	19.15	398	18.76
Seven.....	683	20.86	861	20.82
Eight.....	796	23.17	1,082	22.71
Nine.....	796	25.09	1,023	25.07
Ten.....	725	27.65	1,029	27.43
Eleven.....	753	29.61	808	29.93
Twelve.....	715	33.42	779	33.17
Thirteen.....	518	37.58	648	38.29
Fourteen.....	331	42.56	565	43.12
Fifteen.....	183	46.77	403	46.90
Sixteen.....	86	49.73	265	50.06
Seventeen.....	49	53.93	131	52.12
Eighteen.....	43	52.59	100	54.03
Nineteen.....	22	54.26	40	52.90
Twenty.....	....	.....	33	52.67

boys during the period of prepubertal acceleration. Girls enter this time of rapid growth at the age of eleven or

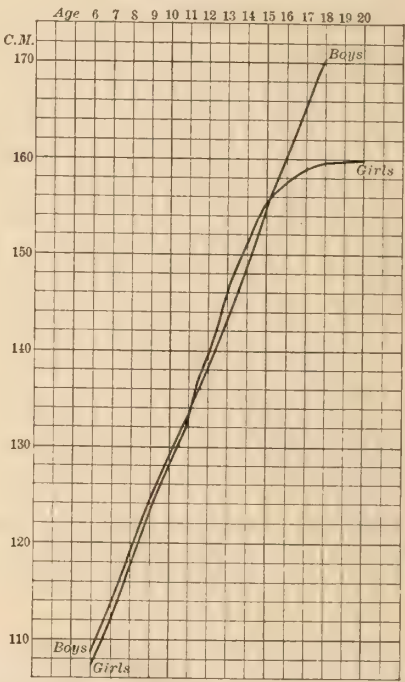


CHART II.—Height of boys and girls in St. Louis public schools; ages, six to twenty years.

twelve—two years earlier than boys—and during several years they are larger than boys of the same age. Since

AGES IN YEARS AT WHICH GIRLS BEGIN AND CEASE TO BE LARGER THAN BOYS.

DIMENSION.	BEGIN.			CEASE:		
	Percentile grades.			Percentile grades.		
	25.	50.	75.	25.	50.	75.
Weight.....	12 ¹ / ₂	12 ³ / ₂	11 ⁶ / ₂	16 ³ / ₂	15 ⁶ / ₂	14 ⁸ / ₂
Height standing.....	11 ⁸ / ₂	11 ⁵ / ₂	11 ³ / ₂	15 ³ / ₂	15 ³ / ₂	14 ¹ / ₂
Height sitting.....	11 ¹ / ₂	11 ⁵ / ₂	11 ² / ₂	16 ¹ / ₂	16 ¹ / ₂	16 ³ / ₂
Span of arms.....	12 ¹ / ₂	11 ¹ / ₂	11 ⁸ / ₂	15 ³ / ₂	14 ⁵ / ₂	14 ⁷ / ₂
Girth of chest.....	12 ³ / ₂	12 ⁶ / ₂	12	16 ³ / ₂	15	15 ⁵ / ₂
Height of face from hair line to point of chin...	....	11 ⁹ / ₂	....	....	15	....

girls are smaller than boys from birth onward, until the prepubertal acceleration, the period during which boys are smaller than girls does not begin until some time after the beginning of this acceleration and ceases a little later. The ages at which girls begin and cease to be larger than boys are given in the preceding table.

By a study of these figures it can easily be seen that big girls (seventy-five percentile grades) begin to be larger than big boys at an earlier age than that at which small girls (twenty-five percentile grades) begin to exceed small boys. The small girls remain larger than the small boys longer than the large girls remain larger than the large boys. The small girls maintain their superiority about three years and ten months, and the large girls only three years and four months.

"When we compare the average stature and weight of the school children of various cities with that of the average population we find striking differences. The Worcester, Mass., children are markedly below the average in stature, while the Toronto and Boston children are almost as markedly at the opposite extreme. The Oakland, Cal., and the St. Louis children also show opposite characteristics; the former, starting at five years of age below the general average, rise above it at the end of the period of growth, while the St. Louis children, starting above, fall below the average. The Milwaukee children represent more nearly the general average. There is also to be remarked a striking difference between the curves of comparative stature of the two sexes in the various cities. In Toronto, Milwaukee, and Boston the comparative curves in the two sexes are near together. In St. Louis they are quite markedly separated after the fifteenth year, while in Oakland, and especially

Worcester, the difference reaches its maximum. The variations in weight are much more strongly marked than are those of stature. Here again we find the Toronto children the least well developed and the Worcester chil-

TABLE I.

THE HEIGHT STANDING.

AGE AT NEAREST BIRTHDAY	SEX.	Number of Observa- tions.	Unit of Measure- ment.	Average.	Probable Error of Average. <i>E</i> .	Probable Deviation <i>d</i> .	Relation of Probable Deviation to Average $\frac{d}{A}$	Absolute Annual Increase of Average.	Relative Annual Increase of Average.	25 Percen- tile Grade.	Median or 50 Percen- tile Grade.	75 Percen- tile Grade.	Median Minus Average.
					$\pm$	$\pm$	%		%				
Six.....	Boys.	709	Centimeter's	108.94	0.128	3.40	3.1			105.99	109.28	112.69	+0.29
	Girls.	780		107.67	0.123	3.42	3.2			104.74	108.10	111.30	+0.43
Seven.....	Boys.	1850	"	114.03	0.084	3.61	3.2	5.08	4.7	111.02	114.48	118.02	+0.45
	Girls.	1791		112.95	0.089	3.75	3.3	5.28	4.9	109.72	113.44	117.07	+0.49
Eight.....	Boys.	2228	"	119.13	0.082	3.89	3.3	5.10	4.7	116.08	119.77	123.58	+0.64
	Girls.	2193		118.36	0.079	3.70	3.1	5.41	4.8	115.07	118.74	122.35	+0.38
Nine.....	Boys.	2205	"	124.35	0.080	3.75	3.0	5.22	4.4	121.09	124.87	128.76	+0.62
	Girls.	2122		123.67	0.83	3.83	3.1	5.31	4.5	120.90	124.11	127.58	+0.44
Ten.....	Boys.	2087	"	128.87	0.087	3.98	3.1	4.52	3.6	125.49	129.45	133.54	+0.68
	Girls.	2053		128.43	0.089	4.06	3.1	4.76	3.9	124.96	128.85	132.58	+0.42
Eleven.....	Boys.	1819	"	133.84	0.099	4.23	3.2	4.97	3.9	130.08	134.44	138.29	+0.60
	Girls.	1772		133.19	0.106	4.48	3.2	4.76	3.7	129.23	133.60	137.97	+0.41
Twelve.....	Boys.	1658	"	138.21	0.116	4.47	3.2	4.37	3.3	134.25	138.57	142.99	+0.86
	Girls.	1732		139.11	0.098	5.23	3.4	5.92	4.4	134.61	139.54	144.44	+0.43
Thirteen.....	Boys.	1268	"	142.91	0.140	4.98	3.5	4.70	3.4	138.45	143.29	148.28	+0.88
	Girls.	1322		146.53	0.160	5.46	3.8	7.42	5.3	140.98	146.19	151.79	-0.34
Fourteen.....	Boys.	925	"	148.58	0.183	5.58	3.8	5.67	4.0	143.48	148.86	154.52	+0.28
	Girls.	1085		150.84	0.166	5.15	3.7	4.31	2.9	146.85	151.94	156.82	+1.10
Fifteen.....	Boys.	490	"	154.90	0.286	6.33	4.1	6.32	4.3	148.88	155.25	161.86	+0.85
	Girls.	680		155.04	0.164	4.01	3.4	4.20	2.8	151.75	155.82	159.58	+0.78
Sixteen.....	Boys.	189	"	160.27	0.427	5.87	3.7	5.37	3.5	155.28	161.27	167.04	+1.00
	Girls.	420		167.62	0.197	4.05	2.6	2.48	1.6	163.94	168.03	171.81	+0.61
Seventeen.....	Boys.	78	"	165.13	0.592	5.15	3.1	4.86	3.0	160.79	166.00	171.84	+0.87
	Girls.	206		169.33	0.241	3.46	2.2	1.81	1.1	165.65	169.40	172.93	+0.07
Eighteen.....	Boys.	29	"	170.41	0.924	4.98	2.8	5.28	3.2	170.50	170.50	170.50	+0.09
	Girls.	164		169.42	0.266	3.39	2.1	0.09	0.06	166.40	169.50	172.93	+0.08
Nineteen.....	Girls.	85	"	158.46	0.438	4.04	2.6			154.32	159.56	168.27	+1.10
Twenty.....	Girls.	79	"	159.41	0.353	3.08	2.0				159.83		+0.42
Twenty-one.....	Girls.	43	"	159.98	0.651	4.27	2.7				160.50		+0.52

tion that Milwaukee does to the stature. They approach nearest to the general average. The comparative differences between the sexes is not so great here as in the case of stature, yet the differences are sufficiently marked, Worcester again showing the greatest and

TABLE II.

THE HEIGHT SITTING.

AGE AT NEAREST BIRTHDAY	SEX.	Number of Observations.	Unit of Measurement.	Average.	Probable Error of Average. $\pm$	Probable Deviation $\pm$	Relation of Probable Deviation to Average $\frac{d}{A}$	Relation of Probable Deviation to Average $\frac{d}{A}$	Absolute Annual Increase of Average.	Relative Annual Increase of Average.	25 Percentile Grade.	Median or 50 Percentile Grade.	75 Percentile Grade.	Median Minus Average.
					$\pm$	$\pm$	%	%		%				
Six.....	Boys.	714	Centimeter's	61.31	0.105	2.82	4.6	56.3			59.11	60.77	63.02	-0.54
	Girls.	751		59.45	0.132	2.03	3.4	55.2			58.23	60.11	62.05	+0.66
Seven.....	Boys.	1853		63.32	0.061	2.64	4.2	55.5	2.01	3.3	61.16	63.22	65.22	-0.10
	Girls.	1727		61.80	0.053	2.19	3.5	54.7	2.45	4.1	60.58	62.44	64.56	+0.64
Eight.....	Boys.	2239		64.74	0.048	2.26	3.5	54.4	1.42	2.2	63.22	65.21	67.17	-0.47
	Girls.	2120		63.97	0.044	2.04	3.2	54.0	2.17	3.5	62.71	64.96	66.37	+0.99
Nine.....	Boys.	2256		66.73	0.049	2.34	3.5	53.7	1.99	3.1	65.05	67.08	69.32	+0.35
	Girls.	2071		66.16	0.046	2.11	3.2	53.5	2.19	3.4	64.78	66.19	68.82	+0.03
Ten.....	Boys.	2118		69.25	0.040	2.42	3.5	53.7	2.52	3.8	66.90	69.18	71.95	-0.07
	Girls.	2037		68.19	0.049	2.19	3.2	53.1	2.03	3.1	66.72	68.88	70.99	+0.69
Eleven.....	Boys.	1828		70.67	0.060	2.56	3.6	52.8	1.42	2.1	68.78	71.09	73.23	+0.42
	Girls.	1748		70.03	0.057	2.37	3.4	52.6	1.84	2.7	67.96	70.62	72.94	+0.59
Twelve.....	Boys.	1656		72.55	0.067	2.72	3.8	52.5	1.88	2.7	70.49	72.68	75.08	+0.13
	Girls.	1707		72.67	0.063	2.61	3.6	52.2	2.64	3.8	70.69	73.22	75.78	+0.55
Thirteen.....	Boys.	1285		74.20	0.076	2.74	3.7	51.9	1.65	2.3	72.08	74.49	76.88	+0.29
	Girls.	1354		75.03	0.078	2.87	3.8	51.9	3.86	4.6	73.78	76.62	79.44	+0.49
Fourteen.....	Boys.	936		76.84	0.103	3.15	4.1	51.7	2.64	3.6	74.37	76.71	79.87	-0.18
	Girls.	1065		78.68	0.096	3.11	4.0	52.2	2.65	3.5	76.50	79.61	82.23	+0.93
Fifteen.....	Boys.	498		79.74	0.161	3.59	4.5	51.5	2.90	3.8	76.51	79.67	83.73	-0.07
	Girls.	674		81.42	0.098	2.64	3.1	52.5	2.74	3.5	79.76	82.20	84.58	+0.78
Sixteen.....	Boys.	193		82.28	0.250	3.48	4.2	51.3	2.54	3.2	79.37	83.22	86.82	+0.94
	Girls.	411		83.76	0.116	2.36	2.8	53.2	2.34	2.9	82.16	84.50	86.52	+0.74
Seventeen.....	Boys.	77		85.68	0.427	3.77	4.4	51.9	3.40	4.1	83.85	86.62	89.55	+0.94
	Girls.	202		84.66	0.153	2.17	2.6	53.2	0.90	1.1	83.00	85.41	87.30	+0.75
Eighteen.....	Boys.	31		88.23	0.536	2.89	3.3	51.7	2.55	3.1	85.86	87.70	92.39	-0.53
	Girls.	167		86.20	0.133	1.72	2.0	53.7	0.54	0.6	84.26	85.89	87.56	+0.69
Nineteen.....	Girls.	85		84.86	0.198	1.82	2.1	53.3			83.96	85.68	87.27	+0.82
Twenty.....	Girls.	78		85.31	0.230	2.03	2.4	53.3			84.15	86.00	88.08	+0.69
Twenty-one.....	Girls.	41		85.05	0.290	1.86	2.2					85.79		+0.74

Worcester, the difference reaches its maximum. The variations in weight are much more strongly marked than are those of stature. Here again we find the Toronto children the least well developed and the Worcester chil-

ren the best developed. Milwaukee and St. Louis show opposite tendencies, the former increasing and the latter decreasing in weight with respect to the average. Boston occupies with respect to weight about the same posi-

"The cities in which the girls are taller than the boys

are, in the order of their height, from least to greatest, Oakland, St. Louis, Milwaukee, Boston, Toronto, and Worcester. The length of time during which the girls are markedly taller is, in Oakland, five; Worcester, one; and

It is evident to many physicians, in the cities at least, that there must be some change in our treatment of the girls at the beginning of the period of prepubertal accelerated growth. These charts, it is hoped, will, with the histories

of lifelong misery, suggest a relationship between relative overwork in the school-room and inadequately accomplished womanhood. It may even suggest the removal of the girl at the age of eleven or twelve entirely from school, or at least from competition with the slower growing and smaller boys for a period of two or three years. This rapid growth of girls at this period, coupled with the need of perfectly accomplished womanhood, ought to influence legislation to protect girls from the factory Moloch. It is perfectly clear to every one that if the needs of our civilization require the labor

TABLE III.
THE WEIGHT.

AGE AT NEAREST BIRTHDAY.	Sex.	Number of Observations.	Unit of Measurement.	Average.	Probable Error of Average. $\pm$	Probable Deviation $\pm$	Relation of Probable Deviation to Average. $\frac{\pm}{A}$	Relation of Average to Height Standing. $\frac{\pm}{\%}$	Absolute Annual Increase of Average.	Relative Annual Increase of Average. $\frac{\pm}{\%}$	25 Percentile Grade.	Median or 50 Percentile Grade.	75 Percentile Grade.	Median Minus Average.
Six	Boys.	707	Kilogram.	19.75	0.054	1.43	7.2	18.1			18.57	19.85	21.27	+0.10
	Girls.	798		18.93	0.051	1.44	7.6	17.6			17.70	18.99	20.44	+0.06
Seven	Boys.	1814	"	21.67	0.039	1.68	7.8	19.0	1.92	9.7	20.14	21.66	23.36	-0.01
	Girls.	1714		20.82	0.045	1.88	9.0	18.4	1.89	10.0	19.25	20.81	22.55	-0.01
Eight	Boys.	2188	"	23.78	0.042	1.96	8.2	20.0	2.11	9.7	22.00	23.87	25.85	+0.09
	Girls.	2147		22.88	0.042	1.95	8.5	19.2	2.06	9.9	21.02	22.85	24.75	-0.03
Nine	Boys.	2188	"	26.06	0.045	2.09	8.0	21.0	2.28	9.6	24.17	26.22	28.28	+0.16
	Girls.	2055		25.08	0.049	2.23	8.9	20.3	2.20	9.6	23.07	25.04	27.31	-0.04
Ten	Boys.	2064	"	28.32	0.049	2.23	7.9	22.0	2.26	8.7	26.07	28.36	30.81	+0.04
	Girls.	1947		27.49	0.052	2.31	8.4	21.4	2.41	9.6	25.08	27.45	29.96	-0.04
Eleven	Boys.	1743	"	31.00	0.062	2.60	8.4	23.2	2.68	9.5	28.50	31.08	33.66	+0.08
	Girls.	1708		30.16	0.070	2.91	9.6	22.6	2.66	9.7	27.28	29.80	32.84	-0.35
Twelve	Boys.	1644	"	33.51	0.061	2.46	7.3	24.2	2.51	8.1	30.65	33.41	36.26	-0.10
	Girls.	1676		33.66	0.081	3.31	9.8	24.2	3.51	11.6	30.05	33.25	36.83	-0.41
Thirteen	Boys.	1242	"	36.61	0.110	3.88	10.6	25.6	3.10	9.3	32.88	36.25	39.86	-0.36
	Girls.	1343		38.49	0.115	4.22	11.0	26.3	4.83	14.3	33.86	38.00	42.79	-0.49
Fourteen	Boys.	946	"	40.44	0.148	4.56	11.3	27.2	3.83	10.5	36.41	39.98	45.38	-0.46
	Girls.	1082		42.29	0.142	4.67	11.0	28.0	3.80	9.9	37.87	42.65	47.55	+0.36
Fifteen	Boys.	498	"	46.22	0.227	5.06	11.0	29.8	5.78	14.3	40.04	45.49	51.75	-0.73
	Girls.	690		46.69	0.154	4.05	8.7	30.1	4.40	10.4	42.59	46.85	50.66	+0.16
Sixteen	Boys.	203	"	51.60	0.431	6.16	12.0	32.0	5.38	11.6	45.66	51.83	57.99	+0.23
	Girls.	420		50.25	0.207	4.24	8.4	31.9	3.56	7.6	46.56	49.96	54.96	-0.29
Seventeen	Boys.	71	"	55.67	0.521	4.38	7.9	33.0	4.07	7.9	51.94	55.31	61.21	-0.36
	Girls.	230		52.61	0.244	3.70	7.0	33.0	2.36	4.7	48.67	52.52	56.47	-0.09
Eighteen	Girls.	155	"	52.36	0.289	3.60	6.9	33.0			49.27	53.10	56.83	+0.74
Nineteen	Girls.	81		52.19	0.382	3.76	7.2	32.8			48.93	52.47	55.74	+0.28
Twenty	Girls.	66	"	53.91	0.566	3.76	7.0	33.7			50.01	53.57	57.33	-0.34
	Girls.	66												

in the other cities three years each. The Oakland girls exceed the boys in height by the tenth year, the Boston girls exceed the boys by the eleventh year, while in the other four cities the girls do not exceed the boys until the twelfth year. The boys do not completely regain their

labor of girls in factories and mercantile establishments, this work should not begin until the girls have got their growth. If a law may fix the minimum age for girls to work in a factory, that minimum should be at sixteen or seventeen. In Massachusetts, New York, New Jersey, and

TABLE IV.
THE SPAN OF ARMS.

AGE AT NEAREST BIRTHDAY.	Sex.	Number of Observations.	Unit of Measurement.	Average.	Probable Error of Average. $\pm$	Probable Deviation $\pm$	Relation of Probable Deviation to Average. $\frac{\pm}{A}$	Relation of Average to Height Standing. $\frac{\pm}{\%}$	Absolute Annual Increase of Average.	Relative Annual Increase of Average. $\frac{\pm}{\%}$	25 Percentile Grade.	Median or 50 Percentile Grade.	75 Percentile Grade.	Median Minus Average.
Six	Boys.	708	Centimetre.	108.95	1.044	9.85	8.5	100.0			105.66	109.57	113.60	+0.62
	Girls.	769		106.96	0.140	3.87	3.6	99.4			104.18	107.29	111.41	+0.33
Seven	Boys.	1862	"	114.42	0.096	4.16	3.6	100.3	5.47	5.0	111.09	115.08	118.87	+0.66
	Girls.	1724		112.36	0.107	4.18	3.7	99.5	5.40	5.0	108.76	113.11	117.27	+0.75
Eight	Boys.	2234	"	120.07	0.088	4.18	3.5	100.8	5.65	4.9	116.52	120.73	124.71	+0.66
	Girls.	2182		118.33	0.092	4.28	3.6	100.0	5.97	5.3	114.70	118.13	122.53	-0.20
Nine	Boys.	2272	"	125.18	0.089	4.25	3.4	100.7	6.11	4.3	121.55	125.67	129.93	+0.49
	Girls.	2065		123.63	0.092	4.18	3.4	100.0	5.80	4.5	120.15	124.28	128.42	+0.65
Ten	Boys.	2076	"	130.22	0.103	4.70	3.6	101.0	5.04	4.0	126.19	130.61	135.49	+0.39
	Girls.	2045		128.75	0.104	4.69	3.6	100.2	5.12	4.1	124.63	129.18	133.74	+0.43
Eleven	Boys.	1810	"	135.13	0.113	4.84	3.6	100.9	4.91	3.8	130.89	135.59	140.57	+0.46
	Girls.	1757		134.24	0.116	4.87	3.6	100.8	5.49	4.3	129.42	134.66	139.48	+0.22
Twelve	Boys.	1664	"	140.60	0.112	4.57	3.2	101.7	5.47	4.1	135.55	140.48	145.43	-0.12
	Girls.	1718		140.07	0.109	4.51	3.2	100.7	5.83	4.3	135.12	140.60	146.05	+0.53
Thirteen	Boys.	1281	"	145.09	0.159	5.71	3.9	101.5	4.49	3.2	140.08	145.33	151.37	+0.24
	Girls.	1368		147.19	0.150	5.55	3.8	100.5	7.12	5.1	142.10	147.83	153.39	+0.64
Fourteen	Boys.	934	"	151.28	0.197	6.03	4.0	101.8	6.19	4.3	146.00	151.62	157.36	+0.34
	Girls.	1088		152.58	0.160	5.29	3.5	101.2	5.39	3.7	148.30	153.66	158.54	+0.98
Fifteen	Boys.	495	"	158.43	0.321	7.15	4.5	102.3	7.15	4.7	151.81	158.79	166.04	+0.36
	Girls.	677		156.38	0.176	4.58	2.9	100.9	3.80	2.5	152.62	156.21	161.41	-0.17
Sixteen	Boys.	189	"	163.96	0.574	7.89	4.8	102.3	5.53	3.5	158.04	165.31	171.49	+1.35
	Girls.	413		158.51	0.217	4.41	2.8	100.7	2.13	1.4	155.39	159.31	163.28	+0.80
Seventeen	Boys.	75	"	168.56	0.581	5.03	3.0	102.1	4.60	2.8	164.77	169.58	175.38	+1.02
	Girls.	202		159.01	0.285	4.05	2.5	102.1	0.60	3.2	156.36	159.62	163.45	+0.61
Eighteen	Boys.	32	"	175.31	0.761	4.31	2.5	102.9	6.75	4.0	171.14	175.50	179.94	+0.19
	Girls.	164		160.47	0.344	4.28	2.7	101.3	1.40	0.9	166.65	161.38	165.41	+0.91
Nineteen	Girls.	83	"	158.45	0.517	4.71	2.9	101.8			155.17	158.90	163.09	+0.45
Twenty	Girls.	76		160.17	0.474	4.13	2.6	100.1			156.45	161.50	164.98	+1.33
Twenty-one ..	Girls.	37	"	161.27	0.712	4.33	2.7	100.1			157.40	160.88	166.68	-0.89
	Girls.	37												

supremacy in stature in Oakland and St. Louis until the sixteenth year, while in the other cities this is regained by the fifteenth year."*

boys in Grade II; and these, again, are lighter than those in Grade III, etc.:

dren. *Memoirs of the International Congress of Anthropology*, Chicago, 1894, pp. 50 to 58.

* West, Jerald M. *The Anthropometry of American School Chil-*

MEDIUM WEIGHT OF BOYS AGED ELEVEN, DISTRIBUTED BY SCHOOL GRADES.

GRADES.	Number of boys weighed.	Medium weight in kilogrammes.
I.....	59	28.83
II.....	311	29.74
III.....	664	30.92
IV.....	546	31.43
V.....	123	32.41
VI.....	33	33.29

In order to exclude the possibility that this difference is due to the social relation of the parents of these children or to a particular age, the following table, showing the distribution and weight of the daughters of manual tradesmen, is introduced :

MEDIUM WEIGHT IN KILOGRAMMES OF THE DAUGHTERS OF MANUAL TRADESMEN IN GRADES.

AGE AT NEAREST BIRTHDAY.	SCHOOL GRADES.						
	Kinder- garten.	I.	II.	III.	IV.	V.	VI.
Seven.....	19.73 * 137	21.14 187					
Eight.....		22.60 287	23.56 136				
Nine.....		24.00 87	25.33 240	25.79 68			
Ten.....		27.03 152	27.87 170	28.72 33			
Eleven.....		27.97 49	29.22 135	30.11 116	29.74 27		
Twelve.....			31.95 65	32.57 140	33.69 76	34.50 32	
Thirteen.....			34.16 32	36.32 78	36.66 69	39.16 56	40.18 27
Fourteen.....				38.59 25	41.31 40	40.63 60	

* Under each weight is the number of observations.

It is evident from a study of this table also that the successful pupils are larger and heavier. How important, then, it must be for every physician to have at hand measurements of the normal child, with which to compare his young patients! They should be in some handy book of reference, now that they have been so carefully recorded by Dr. Porter. With the laws of child growth studied out for any community, the physician could compare his little patients constantly with the normal child, and notice any deviation, seek out its cause, and propose rational means of correction. Overstudy, overwork, underfeeding, underexercising, and unbalanced exercising could early be detected, and possibly corrected. It is not to be supposed that a single observation and measurement will be sufficient to establish normal or abnormal growth. The measurements must be more or less continu-

ous. Some children will grow up to manhood as small boys or girls, either in the five percentile, ten percentile, twenty percentile, or thirty percentile grades, and it is the departure from their accredited position that will be significant. Any special deviation from correct proportion must be looked upon as pathological. Thus the measurements of a child place that child say in the seventy-fifth percentile grade for all measurements except the girth of chest, while this places it in the thirty percentile grade. The physician should immediately take such action as would tend to develop the capacity of the thorax. Again, should a child fall higher in the percentile grades in height, standing, and sitting than in weight, girth of chest, and muscular power, the physician should immediately consider that it is a disadvantage to be tall. More labor is required for the movements of the body, more heat is dispelled, and a greater strain is brought on the heart. Such physical exercise and such regulation of the habits of life should therefore be prescribed as tend to counteract or compensate this defect. A tall child may, under wise advice and judicious habits of life, maintain a fair degree of health and attain to length of days, who under an injudicious or foolhardy strain of occupation or play would wreck all hope of usefulness.

Porter has shown that the larger (higher percentile grades) learn more easily and are capable of greater mental work than the smaller. The slow advance of physical growth from six to eleven in girls, from six to thirteen in boys, and the rapid acceleration during the three succeeding years, is also clearly and definitely demonstrated. It is, nevertheless, common knowledge that our school curriculum is entirely inflexible. This is especially the case at ages eleven to seventeen—the Grades V to VIII. There can be no doubt that during the period of prepubertal acceleration the pressure necessary to get good or passable

TABLE V.
THE GIRTH OF CHEST MIDWAY BETWEEN INSPIRATION AND EXPIRATION.*

AGE AT NEAREST BIRTHDAY.	Sex.	Number of Observations.	Unit of Measurement.	Average.	Probable Error of Average.	Probable Deviation.	Relation of Probable Deviation to Average.	Relation of Average to Height Standing.	Absolute Annual Increase of Average.	Relative Annual Increase of Average.	25 Percentile Grade.	Median or 50 Percentile Grade.	75 Percentile Grade.	Median Minus Average.
				±	±	±	%	%		%				
Six.....	Boys.	677	Centimeters.	59.05	0.093	2.22	3.8	54.2			57.45	59.32	61.42	+0.27
	Girls.	741		58.34	0.091	2.48	4.3	54.2			56.81	58.37	60.98	+0.53
Seven.....	Boys.	1708	"	60.62	0.057	2.38	3.9	53.1	1.57	2.7	58.79	60.89	63.25	+0.63
	Girls.	1631		59.47	0.062	2.47	4.2	52.7	1.13	1.9	57.65	59.87	62.31	+0.40
Eight.....	Boys.	2095	"	62.18	0.052	2.35	3.8	52.2	1.56	2.6	60.49	62.55	65.13	+0.57
	Girls.	2040		60.81	0.057	2.40	3.9	51.3	1.34	2.3	59.94	61.34	63.80	+0.53
Nine.....	Boys.	2120	"	63.90	0.055	2.51	3.9	51.4	1.72	2.8	61.97	64.33	66.91	+0.48
	Girls.	1966		62.51	0.057	2.53	4.0	50.6	1.70	2.8	60.65	63.03	65.60	+0.52
Ten.....	Boys.	1997	"	65.59	0.061	2.72	4.1	50.9	1.69	2.6	63.49	65.92	68.64	+0.33
	Girls.	1893		63.02	0.061	2.67	4.2	49.1	0.51	0.8	61.18	64.46	67.16	+0.45
Eleven.....	Boys.	1782	"	67.24	0.063	2.61	3.9	50.2	1.65	2.5	65.29	67.68	70.32	+0.44
	Girls.	1654		65.85	0.075	3.04	4.6	49.4	2.83	4.5	63.38	66.36	69.12	+0.52
Twelve.....	Boys.	1665	"	69.76	0.074	2.94	4.3	49.8	1.52	2.3	66.53	69.17	72.06	+0.41
	Girls.	1624		68.34	0.081	3.24	4.7	49.1	2.49	3.8	65.67	68.49	72.04	+0.16
Thirteen.....	Boys.	1228	"	70.61	0.089	3.11	4.4	49.4	1.85	2.7	68.09	71.01	74.13	+0.40
	Girls.	1313		71.29	0.098	3.54	5.0	48.6	2.95	4.3	63.32	71.64	75.13	+0.35
Fourteen.....	Boys.	925	"	73.27	0.118	3.58	4.9	49.3	2.66	3.8	70.24	73.38	77.27	+0.11
	Girls.	1020		74.13	0.114	3.65	4.9	49.5	2.84	4.0	71.03	74.59	78.29	+0.46
Fifteen.....	Boys.	498	"	76.56	0.169	3.77	4.9	49.4	3.29	4.5	73.25	76.94	80.82	+0.38
	Girls.	639		76.78	0.143	3.70	4.7	50.1	2.65	3.6	73.67	76.92	81.15	+0.15
Sixteen.....	Boys.	205	"	79.22	0.203	4.19	5.3	49.4	2.66	3.5	75.61	79.90	83.71	+0.68
	Girls.	397		78.85	0.164	3.27	4.1	50.5	2.07	2.7	75.98	79.22	82.85	+0.37
Seventeen.....	Boys.	80	"	81.99	0.253	5.15	5.9	49.3	2.17	2.7	78.90	82.20	85.77	+0.81
	Girls.	200		80.39	0.233	3.34	4.2	50.8	1.54	2.0	77.53	80.72	84.13	+0.34
Eighteen.....	Boys.	51	"	84.52	0.528	2.94	3.5	49.6	3.13	3.8	82.69	85.85	88.38	+0.53
	Girls.	162		80.45	0.254	3.23	4.0	49.7	0.06	0.1	77.68	80.92	84.90	+0.47
Nineteen.....	Girls.	82	"	79.10	0.380	3.43	4.3	50.3			76.61	79.81	82.84	+0.71
Twenty.....	Girls.	66		80.54	0.339	2.76	3.4				78.20	81.04	83.99	+0.61
Twenty-one.....	Girls.	59	"	81.51	0.521	2.82	3.5				78.63	81.49	84.99	+0.03

* Obtained by adding the Girth of Chest at full Inspiration to the Girth of Chest at full Expiration and dividing by 2.

work out of the smaller, and therefore duller boys, rouses the larger, more sensitive, and more physically taxed girls

to overexertion. This prolonged overexertion causes, as every physician knows by repeated observations, such harm as a long life can not efface. The teacher should recognize the physical basis of precocity and dullness. The superin-

a clearly defined degree of mental work. When great numbers are considered, this system is practically absolute in its infallibility. Those children below the mean should be under almost paternal solicitude. Those below the twenty-

TABLE VI
THE LENGTH OF HEAD.

AGE AT NEAREST BIRTHDAY.	Sex.	Number of Observations	Unit of Measurement	Average.	Probable Error of Average. E .	Probable Deviation. d .	Relation of Probable Deviation to Average. $\frac{d}{A}$.	Relation of Average to Height Standing.	Absolute Annual Increase of Average.	Relative Annual Increase of Average.	25 Percentile Grade.	Median or 50 Percentile Grade.	75 Percentile Grade.	Median Minus Average.
Six.....	Boys.	606	Milli-metre.	178.39	0.171	4.21	2.36	16.4			174.63	178.86	182.79	+0.47
	Girls.	606		173.45	0.170	4.20	2.42	16.1			170.19	174.34	178.14	+0.89
Seven.....	Boys.	1493		178.54	0.118	4.57	2.56	15.7	0.15	0.08	174.84	179.92	183.79	+0.38
	Girls.	1511		174.09	0.108	4.22	2.42	15.4	0.64	0.37	171.41	175.58	179.76	+0.49
Eight.....	Boys.	2079		179.62	0.106	4.85	2.70	15.1	1.08	0.60	176.03	180.44	184.87	+0.82
	Girls.	2126		175.18	0.092	4.26	2.43	14.8	1.09	0.63	172.17	176.41	180.82	+1.23
Nine.....	Boys.	1986		180.72	0.109	4.87	2.69	14.5	1.10	0.61	176.71	181.00	185.69	+0.28
	Girls.	1884		176.39	0.101	4.39	2.49	14.3	1.21	0.69	173.69	177.80	181.68	+1.41
Ten.....	Boys.	1912		181.45	0.094	4.13	2.28	14.1	0.73	0.40	178.10	181.51	185.85	+0.06
	Girls.	1790		177.24	0.102	4.33	2.44	13.8	0.85	0.48	174.15	178.52	182.47	+1.28
Eleven.....	Boys.	1654		182.87	0.129	5.26	2.89	13.6	0.92	0.50	178.85	182.86	187.26	+0.49
	Girls.	1560		178.08	0.119	4.70	2.64	13.4	0.84	0.47	174.71	179.75	183.78	+1.67
Twelve.....	Boys.	1576		182.54	0.115	4.56	2.49	13.2	0.47	0.26	179.19	183.08	187.52	+0.24
	Girls.	1516		179.50	0.114	4.46	2.49	12.9	1.42	0.80	176.43	180.57	184.86	+1.07
Thirteen.....	Boys.	1207		183.84	0.131	4.55	2.48	12.9	1.00	0.55	179.93	184.21	188.78	+0.37
	Girls.	1187		181.44	0.132	4.55	2.51	12.4	1.94	1.08	178.35	182.48	187.05	+1.04
Fourteen.....	Boys.	890		186.33	0.182	5.44	2.91	12.6	3.09	1.68	182.08	186.24	190.75	-0.69
	Girls.	1003		183.41	0.143	4.53	2.47	12.7	1.97	1.09	180.07	184.71	188.73	+1.30
Fifteen.....	Boys.	502		187.01	0.208	4.66	2.49	12.1	0.08	0.04	183.01	187.69	191.97	+0.68
	Girls.	649		185.12	0.180	4.58	2.47	11.9	1.71	0.93	181.53	185.67	190.90	+0.55
Sixteen.....	Boys.	191		189.06	0.355	4.98	2.61	11.8	2.05	1.10	184.79	190.04	194.77	+0.98
	Girls.	400		186.84	0.256	5.12	2.74	12.1	1.72	0.93	183.02	187.70	192.47	+0.86
Seventeen.....	Boys.	78		189.45	0.575	5.08	2.68	11.5	0.39	0.21	190.93			+1.48
	Girls.	221		188.14	0.275	4.09	2.17	11.8	1.30	0.70	184.58	188.60	192.60	+0.46
Eighteen.....	Boys.	82		193.91	0.717	4.13	2.13	11.4	4.46	2.35	193.75			-0.16
	Girls.	161		187.97	0.252	3.20	1.70	11.9			184.79	188.41	191.86	+0.44
Nineteen.....	Girls.	77		187.91	0.466	4.09	2.18	11.8			184.36	188.31	191.75	+0.40
Twenty.....	Girls.	75		187.81	0.433	3.75	2.01	11.7				188.08		+0.27
Twenty-one.....	Girls.													

tendents, the supervisors, the school committees, and especially the physicians, should recognize the physical and psychological change which children undergo during the years eleven to seventeen. It is not enough that overstrain should be recognized by the harm it has done. The child should be

the University of Illinois, this want will soon be supplied. There will then be no such thing as a stereotyped course of study for all children in a great city, and even the order of exercises and the length of sessions will be the legitimate subject of questions to be answered by experiment alone.

TABLE VII.
THE WIDTH OF HEAD.

AGE AT NEAREST BIRTHDAY.	Sex.	Number of Observations	Unit of Measurement	Average.	Probable Error of Average. E .	Probable Deviation. d .	Relation of Probable Deviation to Average. $\frac{d}{A}$.	Relation of Average to Height Standing.	Absolute Annual Increase of Average.	Relative Annual Increase of Average.	25 Percentile Grade.	Median or 50 Percentile Grade.	75 Percentile Grade.	Median Minus Average.	Width Length Index.
Six.....	Boys.	573	Milli-metre.	143.29	0.118	2.82	1.97	13.2			140.77	143.76	147.11	+0.47	0.80
	Girls.	609		140.27	0.154	3.81	2.72	13.0			137.21	140.83	144.54	+0.56	0.81
Seven.....	Boys.	1571		144.37	0.090	3.58	2.48	12.7	1.08	0.75	141.57	144.98	148.26	+0.61	0.81
	Girls.	1505		141.40	0.099	3.66	2.73	12.5	1.13	0.81	138.63	142.10	145.44	+0.70	0.81
Eight.....	Boys.	1997		145.30	0.082	3.68	2.53	12.2	0.93	0.64	142.37	145.63	149.43	+0.33	0.81
	Girls.	1985		142.31	0.082	3.66	2.57	12.0	0.91	0.64	139.50	142.84	146.30	+0.53	0.81
Nine.....	Boys.	1962		145.87	0.084	3.74	2.56	11.7	0.57	0.39	142.79	146.08	150.05	+0.21	0.81
	Girls.	1914		143.04	0.083	3.65	2.55	11.8	0.73	0.51	140.47	143.58	147.01	+0.54	0.81
Ten.....	Boys.	1827		146.59	0.090	3.85	2.63	11.4	0.72	0.49	143.40	147.11	151.02	+0.52	0.81
	Girls.	1803		143.75	0.093	3.96	2.76	11.2	0.71	0.50	140.99	144.54	148.02	+0.79	0.81
Eleven.....	Boys.	1561		147.29	0.095	3.76	2.55	11.0	0.70	0.48	144.30	147.50	151.42	+0.31	0.81
	Girls.	1541		145.05	0.097	3.80	2.62	10.9	1.31	0.90	142.06	145.54	149.33	+0.49	0.81
Twelve.....	Boys.	1531		147.98	0.092	3.61	2.44	10.7	0.69	0.47	145.19	148.36	152.08	+0.38	0.81
	Girls.	1460		145.64	0.105	4.03	2.77	10.5	0.59	0.42	142.91	146.31	150.06	+0.67	0.81
Thirteen.....	Boys.	1175		148.73	0.114	3.90	2.62	10.4	0.75	0.51	145.46	149.01	152.98	+0.27	0.81
	Girls.	1167		146.78	0.115	3.92	2.67	10.0	1.14	0.78	143.44	147.15	151.17	+0.37	0.81
Fourteen.....	Boys.	873		149.50	0.129	3.82	2.56	10.1	0.77	0.52	146.04	150.04	153.42	+0.54	0.80
	Girls.	927		147.90	0.130	3.96	2.68	9.8	1.12	0.76	144.57	148.26	152.14	+0.35	0.81
Fifteen.....	Boys.	469		149.63	0.186	4.03	2.69	9.7	1.13	0.87	146.24	150.41	154.04	+0.78	0.80
	Girls.	658		148.29	0.150	3.84	2.69	9.6	0.39	0.26	145.16	148.71	152.63	+0.42	0.80
Sixteen.....	Boys.	195		150.98	0.249	3.48	2.31	9.4	1.35	0.90	147.75	151.35	154.96	+0.37	0.80
	Girls.	395		148.95	0.210	4.17	2.80	9.4	0.66	0.44	145.85	149.67	153.44	+0.72	0.80
Seventeen.....	Boys.	75		152.09	0.486	4.21	2.77	9.2	1.11	0.74	149.94	152.50	156.55	+0.41	0.80
	Girls.	221		150.04	0.242	3.60	2.40	9.4	1.09	0.73	146.99	150.43	154.38	+0.39	0.80
Eighteen.....	Boys.	32		151.66	0.685	3.88	2.56	8.9			152.00			+0.34	0.78
	Girls.	165		149.09	0.300	3.85	2.58	9.4			145.96	150.16	153.21	+1.07	0.79
Nineteen.....	Girls.	79		149.11	0.466	4.14	2.78				146.08	150.17	154.10	+1.06	0.79
Twenty.....	Girls.	73		147.82	0.426	3.64	2.46	9.2			144.69	147.70	152.26	-0.12	0.79
Twenty-one.....	Girls.														

guarded against the possibility of harm. Anthropometry infallibly discovers the child that is below the mean of his age. It separates every school into two classes—those physically competent and those physically incompetent for

to the Secretary of the Navy, Washington, 1893, pp. 141-160.

Boas, F. The Growth of Children. *Science*, vol. xix, No. 483, pp. 256, 257, May 6, 1892, and No. 485, pp. 281, 282, May 20th.

five percentile grade should certainly be under the supervision of a properly experienced physician. This would practically place all children in school under a physician's care, because each would be advanced only after a physical examination by him.

But the study of child growth does not stop with physical measurements. The good work of Clark University has furnished simple and effective means of measuring sensibility, reflex irritability, memory, and fatigue. The basis for comparison is, to be sure, not yet at hand, but with the stimulus and propaganda of such congresses as that lately held under the auspices of Professor William O. Krohn, of

In order to give a wider circulation among medical men, eight tables are copied from Porter's monograph, and also a few references to the more accessible literature mentioned in his bibliography.

Bibliography.

Baxter, J. H. *Medical Statistics in the Provost Marshal General's Bureau*, 1875, vol. i.

Bertillon, A. Les proportions du corps humain. *Revue scientifique*, Paris, 1889, vol. xliii, No. 17, pp. 524-529.

Beyer, H. G. Observations on Normal Growth and Development of the Human Body under Systematized Exercise. *Report of the Chief of the Bureau of Medicine and Surgery*

Boulton. Some Anthropometrical Observations. *British Medical Journal*, March 4, 1876, pp. 280, 282.

Bowditch, H. P. The Growth of Children. *Eighth Annual Report of the State Board of Health of Massachusetts*, Boston, 1877; *Tenth Report*, pp. 33-62; *Twenty-first Report*, pp. 287-304; *Twenty-second Report*, pp. 479-522.

Daffner, F. Ueber grosse Gewicht, Kopf und Brustumfang beim männlichen Individuum vom 13. bis 22. Lebensjahre, nebst vergleichender Angabe einiger Kopfmasse. *Archiv für Anthropologie*, Braunschweig, Bd. xv, 1885. Supplement, S. 121, 126.

Fergus, W., and Rodwell, G. F. On a Series of Measurements for Statistical Purposes, recently made at Marlborough College. *Journal of the Anthropological Institute of Great Britain and Ireland*, London, May 17, 1874, pp. 126-130.

Galton, F. On the Height and Weight of Boys aged Fourteen in Town and Country Public Schools. *Journal of the Anthropological Institute of Great Britain and Ireland*, vol. v, 1876, pp. 174-180.

Galton, F. *Natural Inheritance*, London, 1889.

Greenwood, J. M. Heights and Weights of Children. *Twentieth Annual Report of the Board of Education of the Kansas City Public Schools*, 1890-'91, pp. 48-56.

Hitchcock, E. Comparative Study of Measurements of Male and Female Students at Amherst, Mt. Holyoke, and Wellesley Colleges. *Physique*, London, 1891, vol. i, pp. 90-94.

Stevenson, William. On the Relation of Weight to Height and the Rate of Growth in Man. *Lancet*, London, September 22, 1888, pp. 560, 564.

West, G. M. The Growth and Breadth of the Face. *Science*. New York, 1891, No. 18, pp. 10, 11.

West, G. M. Worcester School Children—The Growth of the Body, Head, and Face. *Science*, vol. xxi, No. 518, January 6, 1893, pp. 2-4.

OPHTHALMIC SUGGESTIONS

FOR THE GENERAL PRACTITIONER.*

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IN this paper, Mr. Chairman, I propose to group together the symptoms which serve as a basis for distinction between the common forms of eye troubles such as often come to the notice of the general practitioner before the patients present themselves to the oculist.

Ophthalmia Neonatorum and Ophthalmia Simplex.—The discrimination between ophthalmia of the newborn, a disease fraught with peril to the integrity of the eye, and acute or simple ophthalmia, a comparatively innocuous disease, rarely presents difficulty, provided certain diagnostic points are borne in mind.

Ophthalmia neonatorum usually comes on within three days after birth, but when due to infection from soiled fingers, clothes, or sponges it may be delayed for several weeks. Clinical observation has demonstrated that there are two varieties of this greatly dreaded disease—the one, a mild form which tends to recover, not supplied with a special micro-organism, and a severe form, increasing in intensity, which invades and produces ulceration of the

TABLE VIII. THE HEIGHT OF FACE FROM HAIR-LINE TO POINT OF CHIN.														
AGE AT NEAREST BIRTHDAY.	Sex.	Number of Observa- tions.	Unit of Measure- ment.	Average.	Probable Error of Average. E.	Probable Deviation d.	Relation of Prob- able Devi- ation to Average. $\frac{d}{E}$	Relation of Aver- age to Height Standing.	Absolute Annual Increase of Aver- age.	Relative Annual Increase of Aver- age. %	% Percen- tile Grade.	Median or 50 Percen- tile Grade.	75 Percen- tile Grade.	Median Minus Average.
							%	%		%				
Six.....	Boys. Girls.	611 609	Millimetre.	152.68 150.16	0.209 0.238	5.18 5.88	8.4 8.9	14.0 14.0			148.64 144.68	153.02 150.45	158.59 156.21	+0.84 +0.39
Seven	Boys. Girls.	1621 1486	"	164.57 163.86	0.159 0.137	6.40 5.28	4.1 8.4	18.6 13.6	1.89 3.20	1.40 2.13	150.13 148.73	155.83 154.19	160.40 159.32	+0.76 +0.83
Eight.....	Boys. Girls.	2012 1965	"	167.50 165.19	0.122 0.119	5.46 5.27	3.5 8.4	19.2 18.1	2.98 1.88	1.36 1.19	158.04 151.05	158.04 155.60	163.10 161.11	+0.54 +0.41
Nine.....	Boys. Girls.	1997 1989	"	169.43 167.44	0.127 0.121	5.67 5.38	3.6 8.4	19.8 19.9	1.93 2.25	1.32 1.45	154.45 152.31	160.25 157.76	165.62 163.40	+0.82 +0.32
Ten	Boys. Girls.	1909 1835	"	161.37 160.04	0.127 0.131	5.55 5.62	3.4 3.5	12.5 12.5	1.94 2.60	1.28 1.65	156.47 155.36	161.70 160.56	167.38 166.15	+0.88 +0.52
Eleven.....	Boys. Girls.	1653 1581	"	163.39 162.65	0.143 0.143	5.80 5.70	3.5 3.5	12.2 12.2	2.02 2.51	1.25 1.57	158.67 157.38	164.11 163.40	169.45 169.63	+0.72 +0.86
Twelve.....	Boys. Girls.	1577 1510	"	165.28 165.29	0.137 0.148	5.44 5.76	3.3 3.5	11.9 11.9	1.84 2.74	1.22 1.69	160.37 160.27	165.62 165.95	171.54 171.40	+0.89 +0.66
Thirteen.....	Boys. Girls.	1211 1220	"	167.62 168.35	0.173 0.173	6.01 6.04	3.6 3.6	11.7 11.6	2.40 3.06	1.20 1.65	162.59 164.18	168.16 169.15	173.87 174.85	+0.54 +0.80
Fourteen.....	Boys. Girls.	896 998	"	170.49 171.88	0.236 0.193	7.05 6.11	4.1 3.6	11.5 11.4	2.87 3.08	1.17 1.80	165.01 165.66	171.04 172.00	177.42 178.28	+0.55 +0.62
Fifteen.....	Boys. Girls.	482 635	"	174.30 174.20	0.292 0.211	6.41 5.40	3.7 3.1	11.8 11.9	3.81 2.82	1.15 1.65	168.74 168.92	175.08 174.85	181.28 180.10	+0.74 +0.65
Sixteen.....	Boys. Girls.	193 395	"	178.19 176.28	0.425 0.286	5.90 5.69	3.8 3.2	11.1 11.2	3.89 2.08	1.13 1.19	172.76 171.32	177.93 176.81	184.22 183.09	-0.26 -0.53
Seventeen.....	Boys. Girls.	79 201	"	182.28 178.51	0.553 0.437	7.60 6.20	4.2 3.5	11.0 11.2	4.09 2.23	1.11 1.26	173.62 173.62	182.25 179.41	184.90	+0.90
Eighteen.....	Boys. Girls.	33 139	"	183.67 180.97	0.139 0.520	8.00 6.13	4.4 3.4	10.8 11.4	1.89 2.46	1.10 1.38	175.08 176.82	185.60 181.93	186.81	+1.99 +0.96
Nineteen.....	Girls.	69	"	181.91	0.749	6.22	3.4	11.4	0.94	0.53	174.29	180.08	185.70	-1.83
Twenty.....	Girls.	72	"	179.09	0.560	4.76	2.7	11.2			174.80	179.00	184.38	-0.09
Twenty-one ..	Girls.	33	"	179.97	0.786	4.52	2.5					181.75		+1.78

Minot, C. S. Human Growth. *Boston Medical and Surgical Journal*, July 22, 1881.

Peckham, G. W. The Growth of Children. *Sixth Annual Report of the State Board of Health of Wisconsin*, 1882, Madison, pp. 28-73.

Porter, W. Townsend. The Physical Basis of Precocity and Dullness. *Transactions of the Academy of Science*, St. Louis, vol. vi, No. 7, 1893, pp. 161-181.

Roberts, C. *A Manual of Anthropometry*. London, 1878.

Soames, H. A. *The Scientific Measurement of Children*. London, 1891.

Steet, G. C. Notes on the Development and Growth of Boys between Thirteen and Twenty Years of Age. *St. George's Hospital Reports*. London, 1874-'76.

cornea, often with destruction of the eyeball. This variety is provided with a micro-organism—the gonococcus of Neisser. One authority states that the disease occurs more frequently in boys; my records would show the reverse to be the case; but it would seem to require the exercise of a very active and vivid imagination to attempt to establish a relation between the sex of a child *in utero* and the presence of gonococci in the vagina of the mother. The onset of the disease is generally quite sudden. A trifling discharge in the corners of the eye and a slight reddening of

* Read before the Society of Alumni of Bellevue Hospital, June 6, 1894.

the conjunctiva are speedily followed by great swelling of the lids, with chemosis of the conjunctiva, pain, and a discharge which becomes profuse and very soon changes to a yellow or greenish-yellow pus. The ocular conjunctiva, on separating the lids, will be found to be greatly congested, and later often the seat of hæmorrhages. Deep infiltration supervenes on this, the swollen ocular conjunctiva forming a hard rim elevated above the cornea, which is seen bathed in pus at the bottom of a cup-shaped pit. Damage to the integrity of the eye usually occurs at this time, for this condition produces a strangulation of the nutrient vessels of the cornea, and coincidentally promotes direct infection by the discharge; then larger or smaller ulcers form near the limbus usually, sometimes at the center of the cornea, which heal either by a reparative process or go on to perforation, with loss of aqueous humor, projection forward of the lens, adhesion or prolapse of the iris, and damage to the eye, resulting in a dense white opacity of the cornea or going on to a rapid destruction of the globe by panophthalmitis, or the more gradual shrinkage of the tissues in atrophy of the bulb.

Acute ophthalmia presents a different picture. The secretion is at first thin and watery; the edges of the lids may become œdematous; the conjunctival congestion extends but part way toward the cornea, being most intense at the conjunctival reflection, and becoming less pronounced as it proceeds toward the limbus. Only in extreme cases does the conjunctiva assume the velvety appearance observed in neonatorum. The secretion soon becomes mucopurulent or simply mucoid, depending upon the grade of inflammation, and either gathers at the commissural angles or, if more profuse, mats the eyelashes, and drying seals the eyelids together. Grouping the symptoms in parallel columns, we find—

OPHTHALMIA NEONATORUM.

Is caused by the introduction of infectious materials from the genito-urinary passages of the mother, or is started from careless bathing of the child after birth. Soiled sponges, clothes, or soiled hands conveying virulent lochial discharge may be responsible for an attack. Infection is likely to be often observed to follow retarded labors, and may occur in face presentations.

Except in very mild cases the gonococcus of Neisser is present.

Said to be more common during the summer in cold

OPHTHALMIA SIMPLEX.

Most frequently found during changeable weather, but it may arise from irritant substances in the air reaching the eyes, as dust or tobacco smoke.

Only in very severe cases is a micro-organism demonstrable. If only one eye be affected, and the discharge be very profuse, the cause is undoubtedly an as yet undetermined micro-organism.

May occur at any time, but is perhaps more fre-

quently observed in the spring and autumn seem to be the favored seasons.

Commonly begins about three days, but has been seen within eighteen hours after birth, and it may not appear for several weeks.

Often begins in one eye and spreads by contagion to the other; but the unaffected eye escapes if early sealed by a shield consisting of a watch glass fitted into a perforation in a square piece of rubber plaster, which is carefully applied to the brow, side of the nose, and lower margin of the orbit, leaving the temporal side free for ventilation.

Conjunctiva is at first slightly reddened and a small discharge is perceived at the angles, which discharge rapidly changes to a yellow or greenish-yellow pus, sometimes remaining pent up in the conjunctival *cul-de-sac*.

Congestion of the conjunctiva is coincident with the infiltration and elevation of the hardened conjunctival rim surrounding the pit at the bottom of which the cornea may be seen.

Lids swell up rapidly and become hot, tense, and red.

Milder form usually goes on to recovery without damage to the eye, but in the severe form, even under the most judicious treatment, the eyeball may be destroyed, although at times careful and unremitting treatment will produce a most gratifying result.

quently observed in the spring and autumn months.

May begin at any time.

Generally begins in one eye and spreads to the other, even though the unaffected eye be sealed from possible contagion.

Conjunctival congestion varies in degree, almost never assuming the velvety appearance seen in ophthalmia neonatorum, but is made up of dilated and tortuous vessels, the redness increasing as we approach the lids and decreasing as we near the cornea. The tarsal conjunctiva and the retro-tarsal and semilunar folds are affected; rarely does the congestion involve much of the ocular conjunctiva.

The discharge rarely appears until the second day, and then it is watery; after another twenty-four hours it becomes mucopurulent or mucoid.

Lids rarely swell up, except as a result of injudicious treatment, the result of "meddlesome domestic medication."

Under proper treatment this goes on to complete recovery.

Hordeolum and Chalazion.—The discrimination between hordeolum or styne and chalazion or Meibomian cyst, sometimes called tarsal tumor, should present no difficulty, and yet errors in diagnosis are by no means uncommon. A styne is a small furuncle on the margin of the lid, and is the supuration of a gland or of the cellular tissue subjacent to the gland, having its seat usually in the vicinage of the hair follicles. A chalazion, on the other hand, is a cyst due to chronic inflammation of a Meibomian gland and of the tissue surrounding it. It begins by a retention of the Meibomian secretion, due generally to a plugging up of the duct, and is situated deep in the tarsal tissue. Its growth is slow, and it is usually firm in its attachment to the tarsus, the skin being freely movable over it. When hordeolum or chalazion shows a tendency toward recurrence the probable cause is an ametropic eye, which demands for its relief properly fitting glasses. In parallel columns we differentiate between these troubles as follows:

HORDEOLUM.	CHALAZION.
Onset sudden, although there may be a period of one day's lid irritation as a prodrome.	Growth is very gradual.
Lids hot, red, tender, and painful.	No heat, redness, or pain.
Situated at the margin of the lid.	Situated on the tarsus, at some distance from the edge of the lid.
Skin is usually tense over the swelling.	Skin freely movable over the swelling.
Speedily shows a yellow cap and points in the edge of the lid, often surrounding an eyelash.	Rarely points, and when it does so, the prominence is near the center of the lid.

Keratitis, Iritis, and Glaucoma.—The greatest difficulty in diagnosing ophthalmic diseases arises in distinguishing between keratitis, iritis, and glaucoma.

An injection at the limbus of fine, straight, and immovable vessels, but which can be emptied by pressure, with or without the dilated and tortuous vessels of the conjunctiva (conjunctivitis), limited to one side, usually indicates the presence of a foreign body on, or an inflammatory process of, that side of the cornea. Central keratitis is accompanied by circumcorneal injection extending over the sclera for a short distance only; its color is pinkish, and close examination shows this to be due to the presence of very fine and straight vessels. Further investigation reveals a phlyctenule, ulcer, etc., which demonstrates the existence of corneal inflammation, the subjective symptoms of which include blepharospasm, photophobia, excessive lachrymation, dimness of vision, and pain. In iritis we usually have a train of symptoms which are almost pathognomonic. Pain is of early occurrence, first in the globe—ciliary neuralgia—soon extending to the branches of the trigeminus, especially those distributed to the forehead, temple, and upper jaw; sometimes there is hemicrania. The pain is always most severe at night, often preventing sleep, and diminishing in intensity in the

morning. Impairment of sight, intolerance of light, and lachrymation are in direct proportion to the severity of the attack. The objective symptoms are circumcorneal injection, forming the "iritic corona," some conjunctival injection, a partly contracted pupil only slightly responsive to light stimulus and to mydriatics, its edge dull and thickened; the surface of the iris is muddy and soggy, having lost its natural brilliancy and changed its color, a blue iris becoming a dull gray and a hazel changing to a dirty brown. Local swellings from exudates produce irregularities on the surface of the iris; the cornea becomes steamy and the aqueous more or less turbid. Later there are attachments between the iris and the anterior capsule of the lens, which can be readily detected by using a mydriatic, and which are decisive indications of iritis. When tenderness of the eyeball occurs it suggests inflammation of the ciliary body.

Whenever possible glaucoma should be recognized at its very inception, for its result, total and irremediable blindness, makes it at once the most serious as well as the greatest feared of ophthalmic troubles, whereas its timely treatment will often yield most favorable results.

It sometimes comes on in an extremely insidious fashion, there being a varying prodromal period. Rapid increase in presbyopia, causing very frequent change in glasses for reading; iridescent vision, consisting of a halo around lights, the outer ring being red and the inner one bluish green, with increased tension of the eyeball, form a tripod of symptoms upon which rests the diagnosis of this dangerous malady. These symptoms become intensified; the cornea becomes steamy, like glass that has been breathed upon; the anterior chamber becomes shallow, and the pupil partly or fully dilated and sluggish to light stimulation, while the increased tension of the globe becomes more pronounced, often reaching a stony hardness. The acute form is characterized by intolerable pain in the ball the tension is markedly increased, reaching up to $+2$ or $+3$; the eyelids are swollen; there is a marked conjunctivitis; the cornea is anæsthetic and steamy, the aqueous is turbid, and the iris often is discolored; the pupil is irresponsive and partly or fully dilated. The other symptoms are found within the eyeball, can only be determined by using the ophthalmoscope, and consequently have no place in this paper. An attack may eventuate in blindness, or the symptoms may pass away, leaving only a slightly increased tension and moderate impairment of the movements of the iris. Succeeding attacks occur at irregular intervals, and in unoperated cases blindness is the final result, the eyeball passing into absolute glaucoma, the episcleral vessels coarsely injected, sclera discolored, cornea opaque or discolored, iris atrophied, lens opaque and pushed forward, and the globe of stony hardness, followed by disorganization of the tissues of the eyeball and the formation of staphylomata, or by atrophy of the globe.

Collating the symptoms of keratitis, iritis, and glaucoma, we find that they can be arranged in parallel columns as follows, and for purpose of comparison the symptoms of conjunctivitis, often mistakenly treated for iritis, are also placed in a column:

CONJUNCTIVITIS.	KERATITIS.	IRITIS.	GLAUCOMA.
A feeling as if a foreign body were in the eye.	General irritation, variable in degree.	Severe pain in the globe passing into trigeminal neuralgia.	In severe cases, pain in the globe.
Enlarged and tortuous vessels.	Diffuse congestion of conjunctival vessels and pericorneal injection.	Circumcorneal injection.	
Photophobia absent except in severe cases.	Considerable photophobia and blepharospasm.	Photophobia rarely severe.	No photophobia.
Conjunctiva swollen, sometimes chemotic.	Conjunctiva clear, but in severe cases may be chemotic.	Conjunctiva clear, but it may be bathed in tears.	Only in the severe form is the conjunctiva congested.
No special tenderness of the eyeball.	No special tenderness of the eyeball.	Pressure shows some tenderness of the eyeball.	No special tenderness of the eyeball.
Muco-purulent discharge.	More or less lachrymation.	No discharge; but there is increased lachrymation.	Sometimes an increase in the lachrymation.
Pupil unaffected.	Except other structures be involved the pupil is unaffected.	Pupil sluggish and immobile.	Pupil partly or fully dilated, slightly responsive to light. Late in the case the pupil assumes a greenish hue, the anterior chamber being shallowed or entirely abolished.
A mydriatic acts normally.	A mydriatic acts normally.	The reaction to a mydriatic is slow and abnormal.	A mydriatic should never be used.
Iris unchanged in color.	Iris unchanged in color.	Iris more or less changed in color, a blue iris becoming gray and a hazel changing to a dirty brown.	Late in the case the iris is markedly discolored, and may be atrophied.
No synechia.	No synechia.	There may be posterior synechia.	No synechia.

As the deservedly high position held by conservatism in the practice of medicine and surgery is due largely to the observance of what *not* to do in the treatment of disease or injury, this brief paper will be brought to a close by giving the "don'ts" in the treatment of ophthalmic troubles.

Don't poultice an eye under any circumstances whatever. Binding a wet application over an eye for several hours must damage that eye, the assertions of those professing to have personal experience in this to the contrary notwithstanding. The failure to aggravate an existing trouble by binding a moist application over an inflamed eye, which application is supposed to remain for an entire night, can only be explained by the supposition that a guardian angel has watched over that misguided case, and has displaced the poultice before it had got in its fine work. All oculists condemn the poultice absolutely, in every shape and in every form. Tea leaves, bread and milk, raw oysters, scraped beef, scraped raw turnip or raw potato, and the medley of disgusting domestic remedies popularly recommended are, one and all, capable of producing irremediable damage to the integrity of the tissues of the visual organ.

Don't forget in the examination of an eye that the vascularity of the eyeball may furnish valuable information. Large, tortuous, anastomosing, brick-red vessels, forming a network freely movable, increasing in intensity as we ap-

proach the eyelids and diminishing as we approach the cornea, are indicative of conjunctival inflammation. A rose colored belt around the cornea, diminishing as the eyelids are approached, formed of fine straight vessels, radiating in a parallel direction, designate an inflammation of the cornea, iris, ciliary body, or chorioid. This is what is commonly called the circumcorneal zone or the iritic corona, the vessels being mainly venous and situated in the episcleral tissue. Then there is an irregular patch of congestion on the sclerotic, a livid red or bluish red, indicating episcleritis or scleritis.

Don't allow a nurse to wash out the eyes of patients with ophthalmia neonatorum or gonorrhœal ophthalmia until you have shown how this should be done.

Don't press upon the eyeball, but *upon the edge of the brow*, in separating the eyelids, in any case of corneal ulceration occurring in the course of keratitis, ophthalmia neonatorum, or gonorrhœal ophthalmia, as such pressure can easily cause a perforation of the cornea, extrusion of the lens, and sometimes loss of a considerable quantity of the vitreous humor.

Don't forget that incised or perforating wounds in the ciliary region are most dangerous, and often call for the enucleation of the injured eye to prevent the development of sympathetic ophthalmia in and loss of the sound eye.

Don't prescribe for an inflamed eye until you have tried the tension of the balls, searched for a foreign body caught

under the lids or lodged on the cornea, and examined to see if there is any implication of the iris or cornea.

Don't use lotions containing lead water in any case with abrasion of the corneal epithelium, as particles of carbonate or oxide of lead become deposited at the site of these abrasions and produce irremovable opacities.

Don't use alum lotion in any case with abrasion of the cornea, as it has the power to dissolve the cement of the cornea, and to provoke a deep and dangerous ulcer.

Don't use eserine or pilocarpine in an eye that is the seat of an iritis, and don't use a solution of eserine in any usual case stronger than from half a grain to a grain to the ounce. Stronger solutions have set up attacks of trouble some iritis.

Don't use atropine without testing the tension of the globe, and without proper care as to the strength of the solution employed in the old and the very young.

50 WEST THIRTY-SIXTH STREET.

THE DIETETIC AND HYGIENIC TREATMENT OF CONSUMPTION.

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ABOUT nine years ago I first became thoroughly convinced of the great value in certain chronic diseases of dietetic treatment. Before that time I was, like many others, too credulous as to the power of drugs alone as curative agents in all diseased conditions. The good results so fondly hoped for and expected from that line of treatment did not always appear, and the results were often discouraging and dissatisfying. In the ordinary text-books no special stress was laid upon the value of dietetic methods except in diabetes and a few other conditions. At that time I had a patient in whom I was especially interested.

He was thirty years of age, and had been a splendid type of physical manhood, an athlete, and a genial companion. As a result of boarding-house cookery, however, he had become fearfully emaciated, and already presented the physical signs of consolidation at the apex of the left lung. Added to these was a slight hacking cough. Three prominent professors to whom I took him made the diagnosis of phthisis, and gave a very gloomy prognosis. The drugs prescribed by them had no beneficial effect. Dr. George B. Fowler then saw him, and gave a favorable prognosis. Along with suitable medicinal treatment he recommended a temporary diet of hot water, carefully prepared chopped beef, and stale white bread. The patient's emaciation was immediately checked, and he began to gain strength. Other articles of food, which were both nutritious and easily digested, were gradually added to his dietary, and after following this line of treatment for a few weeks he made a complete recovery. At this time his ruddy cheeks and elastic step were in marked contrast with his former pitiable condition.

The recovery of this patient under dietetic treatment made a great impression upon me, and served to direct my attention at once to the study of dietetics in disease. At

that time there was seemingly considerable prejudice, as well as lack of knowledge, among the members of the profession with whom I conversed, as to the value of the dietetic treatment of phthisis. The dangers of a diet of beef were harped upon as if nothing else caused indigestion.

To understand how to treat consumption from a dietetic standpoint, we must first consider what consumption really is. Consumption is a disease of malnutrition in which a change has taken place in the chyle or in the mesenteric glands, thus leading to a want of vital matter in the constitution. This is usually the result of bad food, impure air, and an irrational mode of living. The lung structure may be still further weakened by inflammatory or other causes. In acute cases there is often a preceding catarrhal pneumonia. Consumption develops most commonly in strumous or scrofulous subjects—struma being an exhausted constitutional state, and it is simply another name for starvation and bad hygiene.

The rôle which the tubercle bacilli play in phthisis is a secondary one; there must first be a weakening of the constitution. Although I have seen apparently healthy children born of tuberculous parents, they are far more often tuberculous, showing an hereditary constitutional vice.

Tubercular consumption is not a local but a constitutional disease, and calls for general treatment. Tubercle bacilli do not and can not cause consumption in a perfectly healthy individual. They only induce disease in persons with lowered vitality, who thus become susceptible to their influence. This vulnerability is generally induced by wrong living, poor food, bad personal hygiene, and causes which lead to exhaustion of the nervous system. Bacterial germs may be found latent in some of the tissues of the body. In consumption they can not develop in the tissues of the lung until there are a weakening and decay of its substance. They live and multiply only in diseased tissues.

When fermentation occurs during the process of digestion different bacteria develop quickly, and in many cases are absorbed into the lymphatics and blood, causing a catarrhal state, and this is probably the first factor in phthisis. Practically, "a tendency to consumption" means that there is a kind of starvation of the system, and this condition is best relieved by attention to diet and personal hygiene.

Consumption is the great destroyer. It causes thousands of deaths every year in this city alone, and therefore any improvement that can be made in its treatment ought certainly to be welcomed. The disease is not only communicable and preventable, but in its earlier stages, and if not too extensive in all stages, it is curable. That it is not necessarily a fatal disease, and that it is curable in all stages, I have seen abundant evidence. While making autopsies at the deadhouse connected with the Almshouse and Workhouse hospitals and the Hospital for Incurables on Blackwell's Island, I have seen cases where there was cicatrization in the apex of the lungs, showing that the consumption had been arrested either by Nature or the interference of art. It is said that persons may have hereditary tendencies to consumption, but, as a rule, it is only a weakened constitution that is inherited. It is generally ignorant

feeding and wrong living that cause the disease in these individuals.

Correct alimentation in this disease is of the greatest importance as a remedial agent. To secure healthy, rich blood for the repair of diseased tissues we must have proper food and a good digestion. Usually the appetite is either depraved or is almost completely lost, so that the amount of nourishment taken by consumptives is often very small. If they have their own way and follow the cravings of a capricious and diseased appetite, they will take very little wholesome food. These diseased cravings for indigestible food must be removed before we can expect much improvement; they are indicative not only of an unhealthy state of the digestive tract, but of the whole system.

In the dietetic treatment of this disease there must be a definite plan pursued, and there are some important points which we must ever keep in mind. We must procure an effective elimination, not only of the waste products of the body, but of the diseased tissue itself. First we must prepare the digestive tract and the tissues of the body to receive and assimilate the nutriment, and then we must select the most nutritious food and so prepare it that it will be readily assimilated. Consumption is too often considered to be a local disease and treated as such. We must remember to treat the whole system, which is in a pathological condition. The most rational method of securing elimination through all the channels of the body is by stimulating the activity of all the emunctories by the ingestion of a large quantity of hot water, and by hot sponge-baths, followed by a vigorous rubbing of the skin. This plan of treatment to be effective must be systematically carried out, and both physician and patient must steadfastly avoid that complete dependence on drugs which converts the wisest method of treatment into blind empiricism.

The causation of a disease should be carefully studied, and then by treating the diathesis the consequent disease can be prevented or removed. Most diseases depend for their propagation upon defects of nutrition. These being removed the disease disappears. We must remove the cause, otherwise the disease will persist in spite of all treatment, and to do this a perfectly clear diagnosis is necessary. It is the bringing up of the vitality of the patient that leads to recovery, as it is a lowering of the vitality that is the first factor in producing disease. Wherever there is vital energy there is resistance to disease. It is a well-known fact that Nature has the power to cure in most cases if we give her the materials to work with, and at the same time stimulate the activity of the emunctories sufficiently to remove the poisonous waste.

The diet for the consumptive must be a scientific diet, based on a knowledge of what the different kinds of food do for the organism. We must provide, first, for the oxidation and elimination of waste products, and secondly, for scientific alimentation with readily absorbed and readily assimilated nutritive materials of the highest grade. There are many factors necessary for the successful treatment of consumption—rest, mental and physical, pure dry air, gentle exercise in the sunshine—all are important; but these are as nothing if the nutrition does not receive

proper attention. A knowledge of dietetics is far more essential to success than a knowledge of drugs in the treatment of either acute or chronic disease. A careful study of the physiology of digestion and assimilation and of the composition and value of the different foods clearly shows us the means by which we are to construct a diet of the greatest utility to consumptives. It would seem as if heretofore there had been a great lack of definite knowledge as to the construction of diet lists. The usual fault is that there is too great a variety for each meal, and much of it is comparatively difficult of digestion. The best argument in favor of the more enlightened dietetic treatment of consumption and of other chronic diseases is to be found in the clinical results. We now know, through a study of physiological chemistry, what foods are of high and what of low nutritive value; what ones are easily digested and assimilated; what require special gland elaboration before their nutritive elements can be utilized; what foods readily ferment, and what are the causes of this abnormal change.

Of especial value are the proteid or tissue-building foods, and the one which stands at the head of the list, because of its utility in this disease, is beef. It is difficult to show the importance of the selection of a correct amount of the different classes of food. If a certain class is taken in excess there is imperfect assimilation, and disease slowly but surely results. I have known fatal diabetes to result from excessive indulgence in raisins. Oatmeal mush, fermenting in the intestines, is a common factor in the production of nephritis. Malassimilation and the imperfect oxidation of waste products from overfeeding and bad cookery are at the foundation of most of the cases of consumption. A vegetable diet contains an injurious amount of the carbohydrates and too little of the proteid element, which, in this combination, is difficult of digestion. That a meat diet, with a small proportion of carbohydrates, is the best food for consumptives has been frequently demonstrated clinically. Milk has not as great a food value as meat because of its greater difficulty of digestion, its proneness to ferment from the sugar it contains, its lack of reparative material—not four per cent. of proteids—and the great danger of its being impure. Milk may fatten and keep the patient plump, but fat persons sometimes have tuberculosis, and much of the fat we see is unhealthful.

Bearing in mind the best proportions of the three classes of proximate principles—viz., that the amount of proteids taken should exceed the amount of starchy food and fat—it is proper to consider how these proportions can be obtained in a most nutritive and assimilable form, so that while the nutrition is brought to the highest point elimination may not be hindered. In the beginning of the treatment the patient should eat nothing sweet, sour, or fried, and starchy and farinaceous foods should be entirely prohibited, with the exception of a small quantity of stale bread or boiled rice, until the digestive and lymph channels are entirely free from the irritating products of fermentation. In consumption there is always a feeble digestion and frequently a low-grade catarrhal and inflammatory state of the digestive tract and the glandular appendages. The internal administration of hot water will tend to remove this con-

dition and restore the parts to their normal state. It is not so much that large quantities of food should be taken, but that it should be thoroughly assimilated. The meat should be lean, juicy beef from the center of the round; and, after all the fat and fiber have been removed, it should be cut into small pieces and passed twice through a perfectly clean "Perfection" or "Enterprise" chopper; or it may be scraped or even chopped on the block by the butcher. This minute subdivision by grinding or chopping makes it most digestible. Many patients have bad teeth, which frequently infect the food. If the meat is not thoroughly masticated the stomach certainly can not prepare it for absorption. It should be kept sterile by handling it with perfectly clean hands only and by cleansing with boiling water every implement it touches. The pulp should now be pressed very gently into cakes from half to three fourths of an inch in thickness. If they are made too thick they will be difficult to cook, and they should not be pressed too firmly together, as this makes them less digestible and less palatable. The cakes should then be carefully broiled over a clear coal fire, or over one free from smoke and blaze, and they should be turned frequently to retain the juice. If desirable, they can be seasoned with a little salt, pepper, or butter.

Another method of cooking the beef pulp is to gently simmer it with a small quantity of water upon the back of the stove for about twenty minutes, or until the meat has turned from the raw red to a delicate pink color, with a brownish exterior. It should not be allowed to boil, as this coagulates the albumin, turning it a gray color, and making it difficult of digestion. This dish is commonly known as "Scotch collops."

When solid food can not be taken on account of fever, properly made beef tea, beef peptonoids, or peptonized milk may be given for a short time; but the ground beef in small quantity is preferable, and can hardly be called solid food. With this meat diet a small quantity of dry, stale bread, two days old, may be taken. It should not exceed in bulk the amount of meat eaten. After a time some vegetables can be carefully added in small quantity—a mealy potato, a little boiled rice, boiled hominy, sago, tapioca, or farina gruels; but our main dependence must be upon the beef. When there is a strong craving for more variety, the dietary may be extended by adding tender steak, lamb, mutton, turkey, game or chicken, French peas or string beans. The succulent vegetables—celery, lettuce, dandelions, cauliflower, and spinach—are sometimes useful, as they assist in overcoming the constipation that is frequently present. The idiosyncrasies of the patient should be studied. Many have aversions to certain wholesome foods, but these can be usually overcome by a little judicious training. There are whole families who can not taste milk in any form. I have a patient, a young man of twenty, who can never taste tomatoes—even the odor of sliced tomatoes being sufficient to make him sick. There are other things also, such as asparagus and cauliflower, which it is impossible for him to eat, and like many others he can not eat Lima beans or yellow beans. Articles having a decided odor are exceedingly distasteful to him.

He has never eaten butter, and can not take it in any form, either fresh or salt, without it causing excessive nausea. These neuroses, as they may be termed, of the gustatory nerve are often really psychoses and are extremely common. They have frequently to be considered in the treatment of consumption. Many of our ordinary articles of diet are taken as the result of an acquired taste. This is particularly the case with tomatoes, Lima beans, oyster-plant, parsnips, carrots, and turnips. Many persons can not eat butter on bread, even when extremely hungry, without being nauseated. Again, some individuals never eat salt while others take inordinate quantities. In these cases there is always digestive derangement, and generally decomposition of starchy, saccharine, and fatty articles of diet. In the foregoing regimen these have been excluded to a great extent. If constipation be present, a little Turkish rhubarb or, better still, a small glass of senna tea, with an aromatic such as fennel to obviate griping, or a teaspoonful of table salt in a glass of water, may be taken on going to bed. Bad cooking and indigestible food, like cheese, pastry, baked beans, corn, lobsters, clams, pork, greasy macaroni, sausage, cabbage, pickles, porridge or mush, hard-boiled eggs, salads, veal, doughnuts, nuts, raisins, raw onions, cucumbers, fruits, and impure milk, should be carefully avoided. To this may be added strong tea and coffee, especially the latter, and all fried foods.

As regards liquids, the patient may be allowed to drink a cup of properly prepared, thick, home-made beef tea, or the expressed juice of beef every two or three hours, if very weak; otherwise only at meals. Peptonized milk, or milk and Highland water, or cocoa, or very weak tea, may also be taken for a change, but without sugar.

The patient should have a table to himself or eat alone, otherwise there will be a temptation to indulge in articles not permitted. When the appetite increases very much, four meals may be taken daily if needed, but at regular hours, the last one not to be later than seven o'clock. It is not well for the physician to be too strict in regard to diet, nor prejudiced against certain foods, as individuals vary. The meals should be simple, and confined to a few articles, the less the better.

Elimination of the diseased products is of extreme importance in all acute and chronic diseases. If the diseased materials are allowed to remain, the growth of bacilli will be correspondingly great. When the vitiated matter is removed by elimination, the disease can not be so severe, as then there is an internal asepsis which prevents bacillary development. The eliminating organs should be stimulated, and hot water is the blandest and most efficacious means of accomplishing it. A glass or two of hot water should be taken an hour or two before meals, and half an hour before retiring, and enough fluid, preferably water, with the meals to assist digestion and absorption. It would be well if hot-water shops were as common in this country as in China; they would to a degree be a substitute for the liquor stores, and would accomplish the same purpose in removing internal cravings and stimulating the patron without intoxicating him.

After elimination the next important step is to build up, when possible, the diseased and broken-down lung tissue. This is accomplished by stimulating the manufacture of pure, fresh blood. To understand thoroughly the dietetic treatment of disease, it is absolutely necessary to know perfectly, not only the composition of the different foods, but the changes they undergo when taken into the system. We are omnivorous, and if we indulge to excess in any indigestible or special kind of food for a lengthened period of time we overtax the system and disease is the result. Almost all chronic diseases are developed in this way, and this is the most common predisposing factor to acute disease. The kinds of food which are generally taken in excess are the starchy, saccharine, and fatty. These foods, however, are more easily oxidized than the proteids.

In consumption, there being an excess of waste, we must be careful to get the proper quantities and proportions of proteid and carbohydrate foods, and have the waste products completely oxidized. When fresh meat is taken there is an increase of the red corpuscles—the oxygen carriers—but there is a limit to the quantity of food that can be oxidized. Ordinarily, we take too much carbohydrate food, and our meats (proteids) are, except in the largest cities and among the more intelligent, usually improperly cooked—most generally fried. It is the taking of excessive quantities of indigestible and stimulating foods that causes disease. To maintain the highest standard of health, more of meat than of vegetable food should be taken. Carnivorous or meat-eating animals seldom have consumption, while it is quite common in the herbivorous or vegetable-eating animals. The greater “vitality” or activity of the former as compared with the latter is worthy of note.

The fallacies of a purely vegetable diet are most commonly demonstrated by the bedside of the patient. Such a diet requires a greater amount of oxygen and more extensive elaboration by the glandular structures of the body, and results in an excess of waste, which must be excreted. I have seen nephritis developed by the excessive indulgence in cereal and fried foods. Milk, although almost universally recommended, is not a good exclusive diet for a consumptive. It is all right for small children and babies, who simply require to be kept warm with fattening food. I do not disapprove of it because a large percentage of cows are tuberculous, but experience has taught me that a meat diet is far preferable for adults. It is a concentrated and most nutritious food, and withal is easy of digestion. In Japan there are hardly any cows, yet the people are in good health.

In treating consumption we should give more attention to the liver than to the lungs. We should restore the biliary secretion to a healthy standard, both as to quality and quantity. From our standpoint the liver is the most important organ, for by its defective elaboration of food products nutrition is impaired, and anæmia and disease result. Overfeeding and improper feeding tend to imperfect elaboration and elimination by giving the liver and kidneys too much work to perform.

I do not entirely discard milk in all cases, but I think too much reliance has been placed upon it alone as a reconstructive tissue food. There are many who say they can not take milk, but the stomach can be trained to receive it and in a short time to relish it. A very small quantity should be given at first. It should be remembered, however, that milk has been shown to contain a number of parasites and bacteria.

There is a strong tendency to lose sight of the great underlying principle in medicine, that vital force depends solely upon the nutrition of the tissues, and can only be increased by improving the nutrition. The words “starvation” and “self-poisoning” from a clinical standpoint are the most important words of all those in the domain of medicine. Both of them signify “decay,” and decay is death.

Climate and medicines alone will not often cure consumption, although they may tend to prevent it. In this disease the increased digestion of nitrogenous food is our sheet anchor, and when this is inadequate there is no arresting the progress of the malady. There are certain forms of consumption which, when well advanced, are beyond dietetic or medicinal aid, but there are other and more common types which are readily curable. Even in cases where the lungs are much involved the progress of the disease can be permanently arrested. While nothing gives such good results as careful dietetic treatment, aided by medicines, a careful preparation of the digestive tract and its appendages should not be omitted. This not only removes catarrhal and inflammatory states, but gives tone and strength to the muscular and nervous systems, stops diarrhoea, nausea, and fever, restores the appetite, and increases and enriches the blood supply. Climate is often a great aid to such treatment, and when combined with other hygienic treatment brings back health and vigor to many a hopeless consumptive. Where much lung tissue has been destroyed, it frequently arrests the disease, even though it is impossible to entirely cure it.

Pure Atmosphere.—All dietetic, general, tonic, or other treatment is useless unless there is a plentiful supply of pure air. Pure air is a great stimulant to the appetite and digestion. The rooms occupied by the sick one should therefore be carefully ventilated without producing draughts, and in cold weather should be filled with a genial warmth. The patient should be out of doors as much as possible when the weather is not too severe.

Exercise.—Gentle exercise, without fatigue, has a very beneficial effect upon nutrition by stimulating the action of the heart, accelerating the circulation, and increasing the respiration. It thus increases the oxidation of waste products and leaves room for the assimilation of nutriment. For the weak, a daily carriage ride is beneficial, and for those who can not afford this the street cars can be utilized. Boat rides on bays, lakes, or rivers, and sea voyages are also often very beneficial; but the sick one must, be well wrapped up. For those who are able, walking in moderation is a very useful form of exercise.

Bathing.—The skin should assist in the work of elimination and protection. Cold sponge baths to the chest

have a salutary effect on the lungs, but must be immediately followed by friction with a coarse towel. A hot sponge bath, with a little kretol added, should be taken at night, and the body should be vigorously rubbed afterward. If there is a tendency to "catching cold," the body may be well rubbed with some nutritive oil.

Apparel.—Flannel undergarments of a thickness suitable to the season should be worn. It would be difficult to get them too thick for our severe winters. In cold weather the stockings should be of wool.

For cleanliness, a soap-and-water or hot salt-water bath should be taken at night before retiring. This should be done in a very warm room, and at least twice a week if no other baths are taken.

The following cases are interesting in this connection, and illustrate the value of this method of treatment:

Miss K. D., twenty-five years of age, consulted me eight years ago. She had a troublesome cough, was chilly and feverish, and had some pain in the chest. Her appetite was poor, she had night sweats, and there was considerable emaciation and weakness. On physical examination, I found a catarrhal condition of the apex of the left lung. She had been living upon a very innutritious and indigestible diet and sleeping in a room without proper ventilation. She had always worn cotton undergarments even in winter. Under careful dietetic treatment she made a perfect recovery, and remained well until last February, when, as a result of a return to her careless habits of eating and an exposure to cold, there was a return of the cough. This has again left her, and she is now perfectly well.

Mr. B. D., twenty-five years of age, a business man, first consulted me six years ago. He had at that time specific disease and consolidation of the upper portion of the right lung. There was severe cough with abundant muco-purulent expectoration containing tubercle bacilli. He had fever every afternoon, and very severe night sweats. The tongue was heavily coated; there was entire loss of appetite, and constipation was present. Under careful dietetic and medicinal treatment he recovered, and is living in good health, although there is diminished respiration and expansion of the chest on that side. He has been refused as a risk by two life-insurance companies on account of the condition of his lung. He looks well, never coughs now, and says he is "all right." He does a large amount of hard work daily.

Miss N. O. H., twenty-two years of age, a school teacher, when seen four years ago gave the following history: She had had gastro-intestinal catarrh and anæmic dysmenorrhœa, and had always suffered from "cramps" at her menstrual periods. She had been extremely anæmic and emaciated since having had an attack of bronchitis. She had been under the care of several physicians, two of whom had told her that the uterus should be dilated and straightened. Her cough was very severe, and accompanied by copious expectoration containing an abundance of tubercle bacilli. One of her sisters had died of consumption, and she was considered by her relatives as already doomed to perish with the same disease. For a considerable time she had been subsisting chiefly on carbohydrate food, following the cravings of a disordered appetite. Her ordinary diet had been fresh bread, butter, strong tea, cake, pickles, lemons, raw fruit, and salt in very large quantities—a teaspoonful at a time. Under dietetic treatment, with special attention directed to the improvement of the general health, she gained four pounds the first week. Her attacks of mental depression,

which had been severe, entirely disappeared, and in a very short time her health was completely restored.

Miss N. S., twenty-one years of age, I first saw six years ago. Part of the lower lobe of her left lung had already been destroyed by a tuberculous ulceration about three inches wide and five inches long. Dead portions of two ribs, four inches long and as black as ebony, were protruding from her side. The fingers could be passed between them and the ulceration. Her diet had consisted principally of bananas and cream-puffs, for which she had an inordinate craving. Wholesome food was extremely distasteful to her. Under strict regimen of hot water, chopped beef, and stale bread, with a local antiseptic wash and a digestant internally, the necrosed portion of the ribs dropped off and the ulceration healed in a week. She is now in good health, although very careless at times about her food.

Miss M. N., twenty-six years of age. Her father's failure and death compelled her to work for a living. When I first saw her, four years ago, she had been under the treatment of some of the best-known physicians of Brooklyn. The prognosis given to her relatives was that she might live a month or two at the very longest. After a physical examination it seemed to me that the prognosis was not so grave. I found a cavity occupying the whole of the upper half of the right lung, while the lower portion was completely consolidated. In the left lung the respiratory murmur was diminished, and there were mucous râles. There was a very troublesome cough, with profuse and purulent expectoration. Respiration was so greatly embarrassed that she could not converse without stopping frequently to gasp for breath. Her pulse was rapid, small, and weak, and the tongue was heavily coated. She had been living upon an almost exclusively vegetable diet. Her breakfast had consisted usually of coffee and fresh rolls. She had been engaged as cashier in a large retail drug store, and her dinner, which she had usually eaten in the neighboring bake shop, had been generally indigestible and of poor quality. Her supper had also been scanty and innutritious, as she had often been too fatigued to eat. She had never received any advice as to diet from other physicians. I placed her upon a diet consisting largely of ground beef, with a small quantity of farinaceous food, and with hot water as an eliminative. She almost immediately began to improve, and two years afterward I found on physical examination that the consolidated lower half of her right lung had resumed its function, while the left lung was entirely sound. During the heated term last summer she began to decline, and died last November. Under careful dietetic treatment her life had been prolonged, she had continued at her work, and the disease had been arrested for a considerable time.

Mrs. W. N. V., thirty years of age, was taken ill six years ago with bronchitis, and since then a cough has persisted, and for the last two years has been very harassing. There have been at times chilliness and fever, with loss of appetite and night sweats, exhaustion, and emaciation. Three years ago she had a pulmonary hæmorrhage, and every time she coughed she "brought up blood for days." The disease is confined to the right lung. Two years ago she had several sudden and profuse hæmorrhages, and was extremely weak for a long time afterward. The last hæmorrhage was in July, 1893, when I began to treat her by dietetic measures alone. She followed the plan of treatment rigidly. She has had no hæmorrhage since, and she finds that the more closely she follows the regimen laid down the better she feels. There has been a great change for the better in her appearance; her cough and expectoration have already disappeared, her cheeks are fat and rosy, the appetite is now excellent, and she sleeps well.

Many similar cases could be enumerated, but the foregoing are sufficient to show the success of this method of treatment.

776 MADISON AVENUE.

WHERE TO SEND THE CONSUMPTIVE IN SOUTHERN CALIFORNIA.

By WILLIAM H. DUKEMAN, M. D.,
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THE climate of southern California from the tourists' point of view, and from that of the not overcautious and casual observer as well, is indeed a lovely, delightful, and glorious one, with a scenery eastward of captivating snow-clad mountains and rugged hillsides, overlooking beautiful green productive valleys, and westward with a long expanse of semitropical seacoast, and with days of sunshine to the heart's content. A climate with a temperature very rarely reaching the nineties in the summer, and with but few frosty mornings in the winter. Yet a lengthened residence here convinces me that it is not the best climate for the purposes for which many seek it, nor for the many (exceptional?) advantages that are so laudably alleged for it indiscriminately as a home for the consumptive.

The promiscuous manner in which the physicians of the East send the consumptive here is a sad mistake, for southern California *in general* is not a good place for such invalids. We have but few selected localities where the consumptive may expect to derive benefit, and then only too when he comes here in the early stages of the disease. These localities are not in our cities where too many physicians send these unfortunates. Experience has taught us that such places are rather isolated and are either in the mountains, on the desert, or along the seacoast. The best places are along the southern exposure of the foothills of the mountain ranges of Kern, San Bernardino, and Los Angeles counties; off the coast of San Diego and Santa Barbara counties, and in Indio Valley on the Colorado Desert.

Where a dry land breeze and a warm atmosphere are desired Indio Valley offers many exceptional advantages. It is fifty feet below sea level and in a basin which in some places is three hundred and fifty feet below sea level. The temperature extremes vary from 30° F. at night time to 90° F. in midday during the winter months, and from 60° F. at night time to 120° F. in midday during the summer months. The rainfall on an average is less than one inch for the year. The average relative humidity is about sixty. As the heat in the summer during midday is at times extreme and the atmosphere extremely dry, only those specially requiring a hot, dry climate should remain there during the summer months. The consumptive will find it an admirable climate during the season from October to May, as he can live comfortably outdoors every day in the year. Indio has a good hotel, good water supply, telegraph and post office, and is on the line of the Southern Pacific Railroad about eighty miles from Los Angeles.

Those invalids who require an equable seacoast climate

will find no better place than that of San Diego. The temperature extremes vary from 40° to 90° F. the year round; the daily variation is less than that of Santa Barbara, and the winter months are very little colder than the summer. It is, in fact, an ideal climate for the comfort of the invalid, tourist, and pleasure-seeker alike.

For those requiring a higher altitude and a slightly cooler climate, there are along the foothills of the mountain ranges a number of resorts with good hotels, with the most delightful surroundings, and only a few miles from our cities. The resorts are many, and each one offers special advantages. Whether on the desert in Indio, or along the coast of San Diego, or along the foothills of the mountain ranges, the aseptic, ozonized, dry or moist balmy atmosphere, coming as it does either from sea, desert, valley, or mountain, with a dry or moderate relative humidity, the direct vitalizing wants to a diseased lung are supplied. This, with the bright, warm, sunshiny days throughout the year, proclaim for the consumptive the benefits to be derived from a residence in southern California. Once located at either place, he should remain, not a few weeks, or months, or a year, but he should forever make his home the remainder of his life at such place suitable to his particular case, and not go to the city as soon as he feels an improvement in his condition, as is invariably the case, with the result of only to be obliged to return very soon all the worse for making the change. For surely if he regains his health by arresting the progress of so fatal a disease by living at a favorable locality, he becomes as a summer house plant, tenderly cared for by favored surroundings, and, as the house plant, delicate in structure. While, perhaps, his ambition recuperates, his vital energies have in a measure declined. He will find that he no longer has the hard, brawny muscles of the once inhabitant of the temperate climate. A change has taken place. The category of improvement in his case is due partly to the indolence this climate brings upon one. It gives that rest thereby to his entire structure, retaining for the time the latent energies yet stored up in his system to be called upon as needed to restore that extravagant waste engendered by the disease. To the help of the favorable surroundings he alone owes his improved condition, and it is at such place his duty to remain. He should live as much as possible in the open air, not in hotel or lodging house in the city or town, but in a cottage or tent at either of the above-named places. Sunshine and an aseptic atmosphere he must have in this climate, and not house warmth and an infected atmosphere of our cities. For the atmosphere of our cities is no better in this respect than that of other cities, and perhaps not so good. The cottage or tent should be situated on the southern slope of a hill or rise in the land, and so situated as to get the rays of the sun on all sides. For in this climate in the shade there is an unpleasant, ungrateful chilly coolness even during the warm summer days, which is as perceptible under the shade of a palm tree as on the shaded side of a house or hillside. Why this coolness when the thermometer in the sun registers 80° to 100° F. I must leave each one to account for for himself. Even the robust, healthy individual in summer

evenings always goes provided against this coolness with an overcoat. An overcoat is a very essential garment in this climate the year round.

This coolness of atmosphere, which exists at all times in the shade and is very pronounced at nightfall, is one of the drawbacks of this climate as a health resort.

A pleasant coolness of atmosphere of a summer evening in a temperate climate is invigorating; it stimulates the vital energies and brings the blood to the surface, producing a ruddy flush on the cheek, and makes the individual full of life and activity. It is not so with the ungrateful chilliness of the atmosphere at nightfall in this climate. It in some way depresses the system; the invalid loses all activity and energy; he is inclined to assume a quiet position and fears to move, for every change of position he makes adds to his discomfort. Therefore the circulation is depressed, the blood does not flow so freely to the surface, and, instead of one looking refreshed with glowing cheeks, he is pale and blue and cold and chilled clear to the marrow, and feels so uncomfortable and cold as though the flesh were retreating from the bones—so peculiar is the effect of this coolness at times and at nightfall. On summer evenings it is very common to see our people in street cars bundled up in overcoats and wraps to protect themselves against this uncomfortable chilliness. This peculiar coolness of atmosphere, so perceptible in many localities, alone denounces such locality as a resort for the consumptive.

In our cities and towns are many lodging houses and private hotels, which offer many inducements at moderate prices to the invalid, as it is very essential that their patronage is secured or they could not exist. As a rule, they are abominations and death traps and a menace to a healthful people. (Our better class of hotels are, however, well taken care of.) Just think of a lodging house that has lodged, week after week, consumptives (and other invalids) there, without ever having been renovated or thoroughly cleaned, and later a healthy person or another invalid to occupy the same room and same bed as the consumptive in the last stages of the disease—a bed that only sheets and pillow-cases have been perhaps washed, all other bedding and furniture remaining just as the unfortunate one left it, without even there having been a cuspidor or other device for him to expectorate into, and said room never having been disinfected. You can well picture the danger without my entering into further details. Numerous such places are scattered all over our cities. The invalids, and the healthy as well, should be instructed to avoid these places, and they will then be obliged to go out of existence. This is not all. Hundreds of families have rooms to let to the tourist, the invalid, or any one who applies. In many instances these rooms are very little better cared for, and very few, I am sorry to say, are ever thoroughly renovated after the consumptive leaves them. I must not say more, or perhaps you may think our cities are mere nests of tuberculous infection. Our boards of health, however, are becoming cognizant of these facts, and we hope that ere long they will follow the steps taken by the boards of health of Michigan and New York; for, certainly, if any State in the Union requires strict sanitary regulation, the State of California should.

Thousands of invalids enter this State every year. Thousands of consumptives live here, not in their own homes, but at these lodging and rooming houses. Many are sent here, I am sorry to say, in the last stages of the disease, and in a few weeks, or perhaps months, are returned to their friends in a casket. Brother physicians, why send such consumptives so far away from home, when you all know too well the speedy result? Yet, day after day, we are consulted by such unfortunates, only to advise them to return to their homes and friends while they yet have the strength to withstand the return journey, and receive the kind care from those who are near and dear to them.

If the disease is infectious, then the cities of southern California are not the places to send any more consumptives. As an illustration to show how numerous are they among us, I found, out of twelve hundred examinations for life insurance, ninety seven with diseased lungs.* Surely, if one twelfth of the applications made for life insurance are rejected on account of lung disease, then the total number of people here who have disease of the lungs must be appalling. The statistics of our health office show that about thirty per cent. of the deaths are due directly and indirectly to tuberculosis. The greater number of these deaths are just such residents as I have above spoken of, many of them being residents only a short time—perhaps resided here only a few weeks.

While it is also true that many phthisical persons have apparently regained their health after a long residence here, they came here at an early date and at a time when the surroundings were much different and more favorable, and when our cities were mere villages and the source of infection at a minimum.

Los Angeles city to day is not a sanitarium in any sense of the word; it has been made a resort and dumping place for the consumptive, and physicians and every one else should know this fact none too soon.

We hope that very soon tuberculosis will be included in the list of infectious diseases by our board of health, and every such case will then be reported to the health authorities, to receive and carry out such instructions as will protect the health of others as well as themselves. Then every one sent here in the advanced stages may be isolated, and thereby we will protect the public. While Los Angeles may have been advertised in the past as a sanitarium for the consumptive, we can no longer do so; but, instead, I have placed the facts before the reader that will enable him to act intelligently when contemplating sending the invalid to southern California. Such places as I have above named have all the desired accommodation, with Nature's sanitary surroundings, and the consumptive seeking the benefits to be derived from the climate of southern California should not come with the intention of making his home in Los Angeles.

104 SOUTH SPRING STREET.

* See the author's article, *A Résumé of Twelve Hundred Examinations for Life Insurance*, *Medical News*, Sept. 8, 1894.

A CASE OF PSEUDO-HERMAPHRODITISM.*

BY MAURICE A. WALKER, M. D.,

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GEORGE S., twenty-four years old, born of a good family in Vienna. He has one sister and two brothers, all of whom are well formed and have perfect children. When a child he was not treated well by his father, probably on account of his deformity. As a result of this treatment, he left his home about ten years ago and came to this country, where he has resided ever since. Before emigrating he had served his time as a cabinet-maker, and has worked at his trade the greater part of the time since, until about a year ago, when the general business depression prevented him from obtaining work. He has always been in good health.

He is five feet three inches tall, and his usual weight is between one hundred and fifty-five and one hundred and sixty-five pounds. Though stoutly built, the general form is rather that of a masculine woman, excepting the face, which is more that of a male, and thinly covered with a growth of downy hair, sufficient to necessitate shaving at intervals of from ten days to two weeks, in order not to show the nature of the growth. The shoulders are broad as compared with the height, measuring fourteen inches and a half between the acromial tips. The shoulders, arms, and forearms, though covered with a moderate amount of adipose, are muscular. The grip is strong, and he says that he can lift more than can most men. The axillæ are hairless.

The thorax, under the arms, measures in the quiescent state thirty-five inches; during forced expiration, thirty-three inches and a half; and during forced inspiration, thirty-six inches and a half, giving a chest expansion of three inches. In the usual position over the pectorals are well-developed and somewhat pendulous breasts, with erectile nipples and distinct areolæ. On several occasions, during either the menstrual epoch or sexual excitement, when the breasts and nipples become more firm, a slight amount of watery fluid has exuded from the nipples, but never any milk. The breasts were first noticed by him to become prominent when he was about fifteen years old, and since then they have been gradually increasing in size, especially in the last few months, during which time the growth has been so rapid that he contemplates having them removed. He says he can not do outside carpenter work on account of the necessity of keeping the breasts well covered from sight, and so suffering from the heat. Respiration is of the male type, abdominal and inferior costal.

The lower parts of the trunk and the thighs resemble those of a female—prominent buttocks and apparently adducted thighs—though the muscles are well developed, as are those of the entire body. The circumference at the umbilicus is thirty-one inches, and about the hips thirty-six inches and a half. The distance between the iliac crests is ten inches and a half; between the anterior superior iliac spines, nine inches.

Over the pubes there is a well-marked *mons Veneris*, with a deposit of fat, and covered with rather short, brown hair. Below this, in the middle line, is seen the glans of the sexual organ, with a diameter of about three eighths or half an inch, and where the meatus of the male usually exists is a slight imperforate depression. The corpora cavernosa are about an inch long from the glans to the pubes, covered by a very lax prepuce, which is a little darker in color than the skin elsewhere, and extends slightly below the corona glandis.

On either side of the sexual organ may be seen and felt the sexual gland, covered by one half of a divided scrotum or a labium majus. These testicular sacs are hairless. The glands in every respect resemble testes, the epididymis of each lying posteriorly and to the outer side. The testes are about an inch and a half long, the right being slightly larger, and placed a little lower than the left. Their inclosing sacs are not at all pendulous. Lying between the two semi-scroti or labia majora are two red, irregularly-shaped muco-cutaneous folds, continuous anteriorly with the posterior border of the prepuce. These folds lie parallel and close together, extending backward nearly to the plane of the posterior ends of the testes, where there is inclosed and hidden between them the urethral opening, having a diameter of six or seven millimetres.

About half an inch behind the meatus is situated a depression corresponding in position and appearance to the introitus vaginæ. This depression is about three eighths of an inch wide at its center, an inch long and from one fourth to three eighths of an inch deep, its bottom covered by a muco-cutaneous diaphragm. Surrounding this depression are traces of labia minora. Laterally, on either side, from about opposite the middle of the vaginal depression forward to and continuous with the posterior end of the testicular sac, is a fatty elevation about three fourths of an inch long, one fourth to three eighths of an inch wide, and about one fourth of an inch high—the remains of the labium majus. Between the urethra and the vaginal depression the skin may be invaginated by the finger to the depth of an inch and a half or an inch and three quarters, showing at least the possibility of the existence of a vaginal canal.

Between the posterior end of the vaginal depression and the anus there is a slight elevation of the perineal raphæ. Urethral examination was not permitted.

By digital rectal examination, the rectal pouch was found to extend well forward immediately above the sphincters. In the usual position of the prostate anterior to the rectum could be felt a structure seemingly nearly spherical and having a diameter of one half or three quarters of an inch. Bimanual rectal examination failed to show anything corresponding to a uterus or appendages.

In this man sexual desire is present, the desires being always those of a male. During sexual excitement the sexual organ attains a length of two inches and a half or three inches, the remains of the labia majora become slightly turgid and swollen, the nipples erect, and the breasts increased in firmness. Emissions following lascivious dreams or other causes are quite frequent—at least three or four times a month—and the fluid emitted is viscid and colorless. Sometimes, when from the sensation of the orgasm he would expect an emission, the man states that there is none at all and at other times "as much as a tumblerful." He has occasionally had intercourse with females in a peculiar manner, but does not often do so, on account of shame at his deformity.

With regard to menstruation, he remembers that when a small boy he was subject to apparently causeless attacks of epistaxis. At about sixteen or seventeen years of age he first noticed their greater or less regularity.

Now his epistaxis occurs with as great regularity as the menstruation of many women—usually every four weeks, but occasionally extending to an interval of five or even six weeks. Bleeding is sometimes profuse, lasting for one or even two hours, and occurring two or three times a day for about two days. At this time the breasts become firmer, he has slight headache and malaise, and an ill-defined feeling of tenderness in the loins and lateral pelvic regions. However, he says he does not feel sufficiently ill to deter him from work when he

* Remarks made on showing the subject before the Colorado State Medical Society, June 20, 1894.

has work. On several different occasions at this period there has been slight hæmorrhage from the urethra. These attacks have been infrequent, occurred independently of micturition, and were unaccompanied by any symptoms of cystitis, nephritis, or any morbid cause. Between the menstrual times he is free from epistaxis until the next regular monthly period. During the periods the voice is several tones higher in pitch than at other times.

Without discussing hermaphroditism, I will say that cases of true complete hermaphroditism recorded are about as rare as the frequently-mentioned hen's teeth. In this case the non-fusion of the genital folds has resulted in a perineal opening of the urethra and the presence of the muco-cutaneous folds resembling labia minora between the scrotal sacs. Ordinarily the fusion of these folds and their subsequent covering in by the fusion of the genital ridges completes the penile urethra and scrotum. The genital ridges, instead of going on to fusion in front of the perfect urethra and forming a normal scrotum with its median rhaps, have fused on either side of the median line, thus forming two distinct sacs, and into each of these sacs has descended its corresponding testicle. I believe that some sort of a vaginal canal exists in this person, and I am supported in this belief by the ability to invaginate with the finger the post-urethral region and by the evident accumulation of a large amount of fluid, discharged at the time of expected emission. It is a quite common occurrence that in these more or less mixed cases there is a vagina the only external opening of which is through the meatus urinarius.

That this person has well developed breasts, vicarious menstruation, with change of voice, and no beard, is no evidence of the possession of ovaries, because, as we have all observed without being able to explain, when either from congenital defect or operative procedure a person comes to more or less resemble the opposite or is deprived of his or her own sex, the bodily conformation and bodily and mental habits of the opposite sex, to a greater or less degree, according to age, are ingrafted upon or replace those of the former or natural state.

It is my opinion that the case which I have described is one of arrested development or hypospadias, and the person beyond question a male, who may have more or less rudimentary ovaries, uterus, and vagina.

634 FOURTEENTH STREET.

LAMINECTOMY:

REMOVAL OF THE VERTEBRAL SPINES AND LAMINÆ.

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WHY the Greek language should be invaded for a word to indicate that the vertebral canal may be opened when it contains pathological conditions which interfere with the normal action of the spinal cord is a question I do not propose to discuss. It may be that those surgeons who have cut from the dead languages so many of those crisp, melodious words which are said to embellish English medical literature had in mind something more than the mere

hiding from vulgar eyes and ears of the technique of valuable operations.

When the function of the spinal cord is impaired by the pressure of a blood clot, a hæmorrhage, an effusion, a depressed piece of bone, a dislocation, a foreign body, an abscess, or a tumor, there is good reason to believe that removal of this pressure will favor the restoration of the normal offices of the cord and help the patient to get well.

The bony cavity in which the spinal cord rests is not difficult of access, nor is the mere opening of it by surgical means more serious than opening the cranial cavity.

Dogs and cats tolerate exposure of the spinal dura mater through a wound in the posterior segment of the vertebra with almost trifling inconvenience, and on them the surgeon can learn more of the handicraft of removal of the spinous processes and vertebral laminæ in a few hours than can be learned by months of patient study of the literature of laminectomy or laminotomy.

There are characteristic differences between the cervical, dorsal, and lumbar regions which cause corresponding differences in the methods of doing these operations; and it is an addition to the operation to open the dura mater of the cord and explore its vascular and serous membranes. The danger to life is greatly increased. The most delicate manipulations must be familiar to the surgeon who would do this. He can not be permitted to tear round with his fingers and instruments as if he were removing an ovary or peeling out a uterus. The godless and indiscriminating surgeon will never "cut for record" in spinal cases. One thing will always discourage and deter him—the patients are always sick, except in the rare cases of railway spine.

The vertebral canal may be opened so that the lateral and posterior aspects of the spinal cord can be easily examined by first making an incision through the integument and superficial fascia, four inches long, over the spinous processes nearest to the diseased area of the spinal cord. Then the muscles and tendons must be cut away from their attachments to the spinous processes and the laminæ. For this purpose it is well to use a strong knife and periosteal elevator, so that the periosteum may be turned back with the tendons and muscles, as it subsequently becomes useful in filling in the boneless area. A pair of strong retractors with teeth are commonly needed to hold back the soft parts, so that the laminæ can be divided with a chisel and bone forceps. After the laminæ on each side of the spinous process have been cut through, the latter is caught with a strong forceps and lifted from its bed, exposing the vertebral cavity and the dura mater. A considerable space normally exists between the dura mater and its investing wall of bone. Through an opening made by lifting out the spinous process and lamina of one vertebra, the cord can generally be examined a distance of an inch above and below the opening. It is not often necessary to remove more than the posterior segment of one vertebra. If the chisel and bone forceps are used cautiously, and no more bone is removed than is necessary to overcome the pathological conditions on which the operation rests, there will be no need of splint or other apparatus to support the spine during the healing of the wound.

I dress the wound carefully with gauze and cotton and change the dressing as often as it becomes soiled. It is not a good plan to turn the patient during the dressing of the wound. It is better to have three or four strong attendants, who can lift him three times a day from his bed and support him in a horizontal position while the dressings are being applied.

In closing the wound, I take pains to close the peritoneum and muscles over the boneless area with silk sutures.

Drainage by means of tube or gauzes is rarely needed, because gravity is competent to do the work.

The internal treatment is generally limited to tonics and special attention to diet.

The impairment of bowels and bladder incident to paraplegia makes the after treatment and care of laminectomy cases particularly important. Bedsores are sure to come if the patient is not lifted from his bed several times every twenty-four hours. I have tried many devices for moving the patient to facilitate keeping him clean, but have succeeded best when I have summoned a sufficient number of nurses to lift him bodily as often as required. The dribbling urine is apt to get into the bedding and infect the wound if it is not carefully conducted away. I have had no trouble from using a sterilized catheter, lubricated with freshly sterilized oil, three times a day, and in the intervals a rubber or glass urinal has been constantly in service.

A diet containing well-cooked Indian meal helps to keep the bowels in a proper state of solvency.

A CASE OF STRANGULATED FEMORAL HERNIA.*

By W. S. WEISSINGER, M. D.,
HERNANDO, MISS.

It is my honor as well as pleasure to report for your consideration the following case of strangulated femoral hernia:

Miss Bettie L., aged sixty-one years, had suffered at varying intervals for seventeen years with a right femoral hernia, which had been readily reducible until early in the year 1893, when it became irreducible, but caused little inconvenience until the evening of the 18th day of November, 1893.

On this day, the patient having been for several days preceding indisposed from a mild attack of "grippe," and while her bowels were acting from purgative medicine administered during the course of treatment for the "grippe," she was seized with violent radiating pains and cramps in and throughout the abdomen, accompanied by symptoms of moderate collapse. This occurred at 6.30 p. m., November 18th.

Her local physician, Dr. Anderson, of Loves, Miss., was immediately summoned to see her. He succeeded partially only in relieving the collapse, pains, and cramps with opiates hypodermically—she being unable to retain anything on her stomach—and the application of moist heat. Having made the diagnosis of strangulated hernia, he made an unsuccessful effort at reduction, and thereupon summoned Dr. A. B. Ferrell to assist him in the case about 6 a. m., November 19th. Dr. Ferrell, confirming Dr. Anderson's diagnosis, advised and attempted reduc-

tion under anæsthesia, which was also unsuccessful. The two doctors then administered morphine hypodermically, directed more morphine by the mouth, and left her. Returning on the morning of the 20th, they found the patient in about the same condition as the morning preceding, with this addition, that the vomiting, which had been persistent, had become feculent.

An operation was insisted upon at this consultation and the patient warned that without it death was inevitable. This was again declined, the patient insisting that she be allowed to die. The doctors then withdrew, having left directions that morphine be used freely for the relief of pain, and that the patient be nourished as best she could. The doctors made no other professional visit to her, but called at intervals of two or three days to see what her condition was, to find her suffering at each time from fecal vomiting and only a little more exhausted, until the 4th of December, about 3 p. m., when I was summoned to her. Dr. A. B. Ferrell, then of Loves, Miss., but now at Palestine, Ark., and Dr. T. K. Powell, of Dancyville, Tenn., were my guests, and they, with Dr. W. A. Powell, of Hernando, Miss., were invited to see the patient with me, which they kindly consented to do. We found the patient very much exhausted, pulse 120, temperature 96°, pinched and cadaveric expression, fetid breath, very restless, and still persisting in her desire to die and to be let alone. After a full consultation of all the medical gentlemen named, there was but one opinion, and that was that the patient presented the most remarkable case of strangulated hernia of which any of us had ever either seen, heard, or read. We decided to operate and give the patient the only chance for recovery. For two reasons the operation was deferred until the morning following: First, the great probability of the bowels being necrotic, and there being no silk worm or catgut ligatures or Murphy's button at hand; and, second, the hope that by hypodermics of morphine and atropine sulphates, and rectal enemata of milk and whisky, the patient's condition might be improved. Accordingly, we administered a hypodermic of a quarter of a grain of morphine sulphate and one one-hundredth of a grain of atropine sulphate, to be repeated as often as necessary, and every six hours anyway.

The patient was placed between blankets and sufficient covering directed, and jugs and bottles of hot water kept in close proximity to her extremities and body, a rectal enema of four ounces of sweet milk and two ounces of whisky administered, and ordered repeated every three hours.

On the morning of December 5th, the seventeenth day from the onset of the foregoing symptoms, Dr. T. K. Powell having returned to his home, accompanied by Dr. Ferrell and Dr. W. A. Powell, I returned to see the patient, prepared to operate. We found her condition somewhat improved; temperature 96.5°, pulse 115 and of better character, her appearance slightly less cadaveric. She had several short naps during the night, and partial relief from the nausea and vomiting, though the matters vomited were of the same decided stercoraceous character as during the sixteen days preceding. There had still been no movement of bowels at all, only three times enemata being returned. A fact and symptom of the first importance all through the case I state here, which might have been with propriety stated sooner—namely, a complete inaction of the bowels since the accession of the first symptom of strangulation. There was a regular but deficient action of the kidneys all through the period of strangulation.

The patient was placed on the table at eleven o'clock, anæsthetized with chloroform, the field of operation and contiguous parts for some distance thoroughly cleansed with soap and hot water, shaved, and thoroughly disinfected. In fact, the entire operation was conducted under strict antisepsis. After cutting down through the tumor in a vertical direction, the center of

* Read before the Mississippi State Medical Association, April 5, 1894.

the incision being over the femoral ring and exposing the sac, the dissection was continued through this between dissecting forceps. Upon opening the sac there escaped a small quantity—two drachms or two drachms and a half—of brownish, blackish fluid of an offensive odor. Then was disclosed to view a portion of bowel equal in dimension to the space covered by two fingers in width and two thirds of a finger in length, lying internal to double the quantity of omentum, or, to be exact, as I weighed it, three ounces avoirdupois. The color of the intestine was dark maroon and that of the omentum nearly black.

There existed slight adhesion of the bowel to the omentum, and stronger adhesion of the omentum to the outer wall of the sac. Keeping the back of the finger to the bowel and femoral vessels, the point of the finger was carried to the under sharp edge of Gimbernat's ligament, to its attachment to the os pubis; the blade of a long probe-pointed bistoury, with its edge directed toward the median line, was carried flatwise along the palmar side of the finger. The constriction was divided by turning the edge of the bistoury up and directing it toward the pubis. Immediately after this was done a sponge was placed in the wound so as to prevent the escape of any of the fluid in the sac into the abdominal cavity, and then the adhesions between the bowel and the omentum were easily broken up. The protruded bowel and omentum were then enveloped with warm towels saturated with hot sublimated water (1 to 4,000). After persisting in the application of the warm sublimated towels for twenty minutes there was only a slight improvement in the appearance of the bowel, and, thinking it best to return it into the abdomen, this was accordingly done. There was no improvement in the appearance of the omentum, and it was transfixed at the neck of the sac with a large double catgut ligature, tied both ways, and the mass beyond the ligature cut off. The sac was then transfixed in like manner and cut off, and together with the stump of omentum stitched to the upper and lower edges of the ring and tightly closed so that no fluids could escape into the peritonæum. The wound was finally well irrigated, closed with catgut sutures, a small strip of sublimate gauze being inserted in the lower angle of the wound. Iodoform was then dusted over the field of operation, sublimated gauze, borated cotton, and bandages adjusted to protect the wound. The entire time occupied to the completion of the operation was just two hours. Succeeding the operation there was dangerous depression, but the patient gradually rallied under stimulants and artificial heat in the course of four hours, and slowly but steadily improved until her recovery was complete. The drainage from the wound was removed on the third day after the operation, and was clean and free from any appearance of pus. The day following the operation the patient's bowels moved copiously, and have continued to act regularly to this time.

She is now perfectly well, but is wearing, and may always expect to wear, a truss.

The chief features of interest in this remarkable case are the persistence of symptoms of strangulation for the unprecedented period of sixteen days and eighteen hours from the inception of the first symptoms of strangulation to the time of division of constriction; the persistence of stercoraceous vomiting for fifteen days; the non-retention of anything at all in the stomach; the complete inaction of the bowels during the whole period of illness; the marvelous escape of a portion of constricted bowel from death; the death of a portion of omentum, and, lastly, her final reaction, after operation, and marvelous restoration, for one of her advanced age, to her usual good health.

THE
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A Weekly Review of Medicine.

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Edited by
FRANK P. FOSTER, M. D.

NEW YORK, SATURDAY, OCTOBER 6, 1894.

A REMARKABLE INSTANCE OF THE *VIS MEDICATRIX*
NATURÆ.

In the *Progrès médical* for September 15th Professor Severeano, of the University of Bukharest, in Roumania, gives a clinical history which, together with his comments, is of interest from several points of view. In the first place it shows a wonderful power of recovery from injury and disease; in addition it illustrates the difficulty that must often be met with in the medical treatment of royal personages; and, finally, it exemplifies a lack of exactness in clinical records that is somewhat confusing, inasmuch as in the opening paragraph the patient's age is given as sixty-five years, while in the closing paragraph he is said to have passed his eightieth year, and there is nothing in the history to indicate that the patient's ailments lasted fifteen years.

The patient was a prince, said to be of strong constitution and so robust and muscular that he was known in the neighborhood by the name of "the little Hercules." One morning, while descending a staircase, he slipped and in the endeavor to avoid falling contracted his muscles so powerfully that he felt a very sharp pain in the course of the right rectus femoris muscle, and at the same time the knee joint increased perceptibly in size. The prince was able to remain standing, until, with the aid of his servants, he could gain his apartments in the palace. Several physicians were consulted, and all were agreed that the patient ought to remain at rest or in bed and that cold applications should be made to the painful spot. The pain continued to be very sharp, the knee was considerably swollen, and fluctuation was very manifest. At the end of four or five days the author of the account proposed to puncture the collection of blood to which he attributed the tumefaction, but he found himself in a minority among the number of medical advisers, who persuaded the prince that such a procedure would be useless. Little by little the symptoms mended, the pain was more bearable, the swelling diminished day by day, and gentle massage accompanied with limited movements of the injured knee enabled the prince to leave his bed and walk about with crutches. Forty days after the accident the prince went out for a drive, but, since he could not yet bend the knee completely, it was supported on a crutch in such a way that the whole weight of the limb came upon the crutch. The drive lasted two hours, and on his return the prince experienced severe pains in the popliteal region. He was immediately put to bed and the most absolute rest was enjoined, together with the application of cold compresses to the painful part. But another physician was called, and he prescribed massage, not only of

the affected region, but of the whole extent of the limb. The whole limb then became swollen and œdematous and severe pain occurred in it, especially at its upper part, toward the groin, following the course of the blood-vessels. Then absolute rest was prescribed. Toward the evening of the same day there occurred very pronounced agitation, disordered movements of the heart, considerable anxiety and great difficulty of breathing, and a very painful point on the left side, accompanied by a rise of temperature to 104° F. and bloody expectoration. A consultation of several physicians was held immediately, and opinions were divided between pneumonia and pulmonary embolism of traumatic origin, a clot being thought to have formed in the popliteal vein at the point where the leg had rested on the crutch during the two hours' drive. In the course of a few hours this grave condition subsided, the temperature fell to normal, and of the whole disquieting picture there remained nothing but embarrassment of breathing and a slight bloody expectoration. The majority of the physicians consulted considered the trouble to be pneumonia, and accordingly digitalis was prescribed, together with opiates, a blister, and the most absolute repose. A few days later all the unpleasant phenomena disappeared, and the prince had completely recovered, except for some embarrassment in the movements of the knee and a little pain. Gradually these relics also disappeared, and the prince, whose age at this stage of the history is given as more than eighty years, was able to take long walks without the least pain or stiffness of the knee.

The author closes with the reflection that one lesson to be learned from such a case is that whenever a physician has to deal with a royal patient he is unable to do his duty conscientiously, for not only do the *attachés* of the court throw obstacles in his way, but often even his professional brethren forget their capacity as physicians and assume that of the courtier. This, he says, is why princes are almost always worse taken care of than water-carriers, and are, so to speak, victims of their social position.

MINOR PARAGRAPHS.

MEDICAL BOOKS AND MEDICAL JOURNALS.

A LETTER from Messrs. William Wood & Co., the well-known publishers of medical books, which we publish in this issue shows that there is really less divergence of views between medical-book publishers and the editors of medical journals than might be supposed as to the methods by which the latter should acquire their means of giving their readers an idea of the character of the books published from time to time. We must say, however, that we can not admit the desirability of a system whereby the journals should pay the transportation charges. Our correspondents point to the hardship of publishers' paying such charges, on account of the great number of journals, and intimate that it would be a trifling tax on any one journal, as compared with the publishers' expenses, if it paid the charges in question. There are two considerations that seem to us to vitiate the apparent fairness of this proposition. The first is that the system now in vogue is so thoroughly established that the expense incident to it is always taken into account in a publisher's contract with his author. The second

will appear from a reversal of the proposition; if it is a hardship for a publisher to meet these charges on one book sent to a multitude of journals, it would be a like hardship for any one journal to meet them on the multiplicity of books published. Moreover, the publisher knows what sort of book he is sending out—knows how much he is warranted in expending on it—whereas the journal has no means of knowing in advance whether or not a book sent to it is worth the charges to be paid before it can be received. In addition, the alternative of declining to receive the book in some instances would be ungracious; it would be tantamount to saying to both publisher and author: "Your book is not worth the express charges on it."

DR. CONAN DOYLE.

THE recent arrival in New York of this distinguished member of the medical profession of Great Britain—for we must still look upon him as belonging to our profession, although his remarkable success as a writer of fiction has led him to forsake a medical career—will move American physicians to even greater interest than they have heretofore taken in his stories, especially as a volume of them soon to be published here will, we are informed, deal largely with matters incident to medical experience, consisting indeed of what may be termed medical stories. Many physicians have achieved distinction in general literature, and when one does so it is a matter of pride with all his professional brethren. This feeling among us is not in the least impaired by the fact that in this instance the writer, though of our kindred, is not of our own nationality. Dr. Doyle may be sure of a hearty reception at the hands of Americans, and especially at those of American doctors.

ITEMS, ETC.

The Society of Medical Jurisprudence.—The special order for the next meeting, on Monday evening, the 8th inst., is a paper on Examination of the Nasal Cavities in Life Insurance Risks, by Dr. Edward J. Bermingham.

The New York Neurological Society.—The special order for the last meeting, on Tuesday evening, the 2d inst., was a paper on Cortical Localization of Cutaneous Sensations, by Dr. Charles L. Dana.

Changes of Address.—Dr. William H. Dukeman (Los Angeles, Cal.), to No. 104 South Spring Street; Dr. Eugene C. Gehrung (St. Louis), to Westminster Place and Vandeventer Avenue; Dr. Maurice L. Healey, to No. 153 East Thirty-sixth Street; Dr. Charles A. Powers, from New York to Denver.

Marine-Hospital Service.—*Official List of the Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the Four Weeks ending September 22, 1894:*

FESSENDEN, C. S. D., Surgeon. Granted leave of absence for thirty days. September 12, 1894.

MURRAY, R. D., Surgeon. To proceed to Beaufort, S. C., on special duty. September 20, 1894.

BAILHACHE, P. H., Surgeon. Detailed to represent the service at the meeting of the American Public Health Association. September 21, 1894.

VANSANT, JOHN, Surgeon. Granted leave of absence for thirty days. August 30, 1894.

HUTTON, W. H. H., Surgeon. Relieved from Quarantine Inspection duty and ordered to rejoin his station, Detroit, Mich. September 12, 1894. Granted leave of absence for thirty days. September 20, 1894.

- SAWTELLE, H. W., Surgeon. Granted leave of absence for five days. September 14, 1894.
- GASSAWAY, J. M., Surgeon. Granted leave of absence for one day. September 17, 1894.
- BANKS, C. E., Passed Assistant Surgeon. To report at the bureau for temporary duty. September 10, 1894. Detailed to represent the service at the meeting of the American Public Health Association. September 21, 1894. Relieved from temporary duty at the bureau, and directed to rejoin his station (Portland, Me.). September 22, 1894.
- CARMICHAEL, D. A., Passed Assistant Surgeon. Granted leave of absence for thirty days without pay. September 6, 1894.
- WHITE, J. H., Passed Assistant Surgeon. Detailed as chairman of a board to locate a quarantine station, South Port, N. C. September 13, 1894.
- BRATTON, W. D., Passed Assistant Surgeon. To proceed to Wilmington, N. C., for duty. August 27, 1894.
- WERTENBAKER, C. P., Passed Assistant Surgeon. To assume command of the Delaware Breakwater Quarantine Station. August 27, 1894.
- STIMPSON, W. G., Passed Assistant Surgeon. To proceed to Port Townsend, Wash., and assume command of the Quarantine Station. September 10, 1894. Granted leave of absence for five days. September 15, 1894.
- BROWN, B. W., Passed Assistant Surgeon. To report at Washington, D. C., for duty. August 31, 1894. Detailed as Acting Chief Clerk, Marine Hospital Bureau. September 21, 1894.
- HOUGHTON, E. R., Passed Assistant Surgeon. Granted leave of absence for seven days. September 19, 1894.
- EAGER, J. M., Assistant Surgeon. To proceed to Mobile, Ala., for temporary duty. September 11, 1894.
- STRAYER, EDGAR, Assistant Surgeon. To proceed to Pittsburgh, Pa., for duty. August 31, 1894.
- PROCHAZKA, EMIL, Assistant Surgeon. To proceed to Detroit, Mich., for duty. September 10, 1894.

Promotion.

- ROSENAU, M. J., Assistant Surgeon. Commissioned as Passed Assistant Surgeon. September 4, 1894.

Army Intelligence.—Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from September 23 to September 29, 1894:

- BROOKE, BENJAMIN, First Lieutenant and Assistant Surgeon, is relieved from duty at Camp Pilot Butte, Wyoming, and ordered to Fort Canby, Washington, for duty.
- RAYMOND, THOMAS H., First Lieutenant and Assistant Surgeon, is relieved from duty at Fort Canby, Washington, and ordered to Fort Riley, Kansas, for duty.
- PHILLIPS, JOHN L., Captain and Assistant Surgeon, is ordered to report in person to the commanding officer, Fort Walla Walla, Washington, for duty at that station, the assignment to duty at Fort McKinney, Wyoming, being revoked.

Society Meetings for the Coming Week:

- MONDAY, October 8th: New York Academy of Medicine (Section in General Surgery); New York Ophthalmological Society (private); New York Medico-historical Society (private); New York Academy of Sciences (Section in Chemistry and Technology); Lenox Medical and Surgical Society, New York (private); Boston Society for Medical Improvement; Gynæcological Society of Boston; Burlington, Vt., Medical and Surgical Club; Norwalk, Conn., Medical Society (private).
- TUESDAY, October 9th: Tri-State Medical Society of Alabama, Georgia, and Tennessee (first day—Atlanta); New York

Medical Union (private); Kings County, N. Y., Medical Association; Medical Societies of the Counties of Albany (annual), Chenango (tri-annual), Greene (semi-annual—Cairo), Jefferson (quarterly—Watertown), Oneida (quarterly—Utica), Ontario (quarterly), Rensselaer, Schoharie (semi-annual), Tioga (quarterly—Owego), and Wayne (semi-annual), N. Y.; Newark, N. J., and Trenton (private), N. J., Medical Associations; Clinical Society of the Elizabeth, N. J., General Hospital and Dispensary; Bergen and Cumberland (semi-annual), N. J., County Medical Societies; Litchfield, Conn., County Medical Society (annual); Northwestern Medical Society of Philadelphia; Baltimore Gynæcological and Obstetrical Society; Practitioners' Club, Richmond, Ky.

WEDNESDAY, October 10th: Tri-State Medical Society of Alabama, Georgia, and Tennessee (second day); New York Surgical Society; New York Pathological Society; American Microscopical Society of the City of New York; Metropolitan Medical Society, New York (private); Medical Societies of the Counties of Albany and Allegany (quarterly), N. Y.; Pittsfield, Mass., Medical Association (private); Franklin (quarterly—Greenfield), Hampshire (quarterly—Northampton), Middlesex South (Cambridge), and Plymouth (special), Mass., District Medical Societies; Philadelphia County Medical Society; Kansas City, Mo., Ophthalmological and Otolological Society.

THURSDAY, October 11th: Vermont State Medical Society (first day—Montpelier); Tri-State Medical Society of Alabama, Georgia, and Tennessee (third day); New York Academy of Medicine (Section in Pædiatrics); Society of Medical Jurisprudence and State Medicine, New York; Brooklyn Pathological Society; New York Laryngological Society; Medical Society of the County of Cayuga, N. Y.; South Boston, Mass., Medical Club (private); Pathological Society of Philadelphia.

FRIDAY, October 12th: Vermont State Medical Society (second day); New York Academy of Medicine (Section in Neurology); Yorkville Medical Association, New York (private); Medical Society of the Town of Saugerties, N. Y. (anniversary); Brooklyn Dermatological and Genito-urinary Society (private); German Medical Society of Brooklyn.

SATURDAY, October 13th: Obstetrical Society of Boston (private); Worcester, Mass., North District Medical Society.

Letters to the Editor.

MEDICAL PUBLISHERS AND MEDICAL JOURNALS.

NEW YORK, September 25, 1894.

To the Editor of the *New York Medical Journal*:

SIR: In your journal of the 22d inst. we note a minor editorial on Medical Publishers and Medical Journals in which you take the very common, and we think erroneous, view of most editors respecting books sent by publishers for review in their journals. We very much wish editors would primarily accept the fact stated by you, that "publishers send copies of their books for their own purposes, and in no wise as an act of generosity." This is unquestionably so. There is no question whatever of courtesy or generosity in the matter, and publishers would be very pleased if they were spared the daily appeals for editorial copies on these grounds. On the other hand, most men of the medical profession look to the journals like the *Medical Record* and other metropolitan journals, including your

own, to keep them posted as to new publications and their merits; and, while we do not know that the *New York Medical Journal* professes to supply this sort of information, most medical journals do so only so far as books are sent them gratuitously by publishers. Would not the editor's proper stand be to give his subscribers prompt and sufficiently full notices or reviews of all books properly belonging to his field, without regard to whether the publishers sent them to him or not? As we look at it, it should be a matter of indifference to the editor whether the publisher received any benefit from the reviews given or not, his whole concern being the interests of his patrons, the subscribers to his journal. The question of costs in carrying out such a practice is a legitimate one in the expenses of the journal. If, then, publishers send their books to editors, carriage to be collected, the editor has a perfect right to decline to receive the book if he does not consider that its review would be of value to his subscribers, but if otherwise, the opportunity is afforded him of obtaining a book he wishes to review at a merely nominal cost, the publisher well understanding that the reception of the book imposes no obligation upon the editor to review it in any way other than as its merits may in his opinion warrant.

There are over two hundred and fifty medical journals now published in this country, and it has become simply an impossibility for publishers to send copies of their new books to all of them. If any publishers, as in the case referred to by you, sending books for review, in the endeavor to comply with the mistaken idea of a majority of editors that they would otherwise be lacking in courtesy, seek to lighten the burden by permitting editors to pay the freight charges on books sent, it would appear to us short-sighted to decline to pay such charges, which, while in the aggregate burdensome to the publishers, amount to a mere pittance to editors in comparison with the cost of books which would otherwise have to be purchased to meet the just expectations of journal subscribers.

WILLIAM WOOD & Co.

SYPHILIS AND MARRIAGE.

ST. PAUL, MINN., September 20, 1894.

To the Editor of the *New York Medical Journal*:

SIR: For the purpose of securing reliable statistics on the subject of the marriage of syphilitics, I desire to enlist the assistance of those of your readers who have had experience which will be of value in determining the period when this disease ceases to be communicable and inheritable. I shall, therefore, esteem it a great favor on the part of any physician who will send me answers to the following questions, and due credit will be given in a future publication to those who desire to aid me in this work:

1. What is the latest period from the date of the initial lesion that you have known the disease to be communicated by a patient who has been from the first under your observation?
2. What is the latest period from the date of the initial lesion that you have known (a) a syphilitic man or (b) a syphilitic woman to become the parent of a syphilitic child?
3. Have you ever known syphilis to be either communicated or handed down at a later period than four years from the date of the initial lesion by an individual who has been constantly under your observation during that time?

In the answers to these questions I should, like a brief but complete history of each case and an account of the treatment that has been pursued. I hope by this means to obtain the experience of a large number of observers and to reach a fairly reliable conclusion as to the time when we may safely permit our syphilitic patients to marry. BURNSIDE FOSTER, M. D.

Proceedings of Societies.

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNÆCOLOGISTS.

Seventh Annual Meeting, held in Toronto, Ontario, September 19, 20, and 21, 1894.

The Second Vice-President, Dr. GEORGE F. HULBERT, of St. Louis, in the Chair.

An Address of Welcome on behalf of the local medical profession was delivered by Dr. JAMES THORBURN, which was responded to by Dr. HULBERT.

The Incision in Abdominal Surgery—Methods and Results.—A paper thus entitled was read by Dr. J. HENRY CARSTENS, of Detroit. The author summarized as follows: 1. With a small, narrow-bladed, sharp knife make a clean incision through the skin, of the necessary length, and with another sweep or two cut through the linea alba, muscle, etc. Lift the peritonæum with your fingers, open it, and enlarge the incision. The use of the forceps to lift the tissues, or the grooved director is unnecessary. 2. In closing the abdominal incision use animal ligature, kangaroo tendon, or catgut. First carefully bring together the peritonæum in a running stitch, then the transversalis fascia, and the rectus if the incision is through this muscle. Then carefully bring together, edge to edge, the tendinous insertion of the oblique muscles. The fat and loose cellular tissue above can be brought together in one or two tiers, according to thickness. Bring the skin together carefully with Marcy's cobbler stitch, thus burying all the sutures. 3. Then seal with collodion, and, if everything connected with the operation has been carefully aseptic, absolute primary union will take place, and the different layers of the abdominal wall will have been brought together as nearly as possible as they were in the first place, and no hernia will result. 4. In cases of extensive umbilical, ventral, or other hernias, it is best to bring the peritonæum together with an over-and-over stitch of kangaroo tendon or catgut; to make a flap-splitting operation of the ring, which is brought together with silkworm gut or silver wire, which are buried; and then to unite the fat and skin with the buried animal suture.

Plastic Surgery in Gynæcology.—Dr. JOSEPH PRICE, of Philadelphia, read a paper on this subject in which he said that the practice of surgery in all its branches required a mechanical trend and an ability to devise means to accomplish a given end. In order to mend a perinæum intelligently, the mechanism of labor must be understood. In cases of serious pelvic invasion, with accompanying lacerated cervix, it was often better, or imperative, first to do the pelvic operation, and to follow this at another time with the cervical repair. The author condemned the plan advised by some of performing internal and external operations at one sitting. Perineal tears always occurred at certain parts of the perineal structure. These tears were either lateral, under the ramus of the pubes, or central, extending from vagina toward the rectum. The tears toward the rectum tended to run around it rather than through it, owing to the differentiation of structure in these two pubes. The tears of the vagina were always from within outward, from above downward, and therefore the external or skin operations for perineal lacerations were essentially unscientific procedures. All operations for restoring the integrity of these parts should be done in the lines of their destruction, and therefore from within outward and from above downward. When the skin of the perinæum was involved, mending of this was merely a cosmetic

procedure. The cosmetic element too often predominated in many of the so-called perineal devices. The silkworm gut with shot was by far the best material to be used for sutures. As little tissue as possible was to be included within the ligature, and strangulation was to be avoided.

The Care of Pregnant Women.—Dr. W. B. DEWEES, of Salina, Kansas, read a paper thus entitled. The paramount duties of the obstetrician in the study and care of pregnant women might be classified as follows: 1. To discover if the patient was actually pregnant. 2. To determine positively if the pregnancy was uterine or normal, as distinguished from extra-uterine pregnancy. 3. To carefully note the pregnant woman's history, including her age, primiparity or multiparity, environments, station in life, general condition of health, and period of gestation, as well as her dress, food, drink, and habits of life. To make repeated examinations of the urine. 4. To make a physical examination for the purpose of accurately determining the diameter of the pelvic straits; the symmetry and size of the bony outlet; the integrity, condition, and position of the vagina, uterus, and other intrapelvic viscera and adjacent structures; the state of the abdominal muscles; the presence or absence of hernia, varicose veins, tumors, etc.; the shape, size, and condition of the breasts and nipples; and the condition of the heart, lungs, stomach, bowels, etc. 5. To observe the state of the foetus, its strength and viability, as well as the implantation of the placenta. The thoughtful obstetrician would advise his patient as to the requisite *régime*. The consciousness of his full duty would impell him to insist upon: 1. Absolutely regular hours and wholesome environment. 2. Plain but nutritious and wholesome food and drink, principally composed of fresh lean meats, fresh fruits, pure milk, and distilled water. 3. A proper amount of exercise, by walking or light labor on foot and maintaining the erect posture. 4. An open condition of the bowels and skin, which was to be chiefly maintained by proper diet, exercise, bathing, the wearing of flannels, warm, low-heeled shoes, and loose garments, and in rare cases the proper use of laxatives and hot-water enemata.

Appendicitis.—Dr. GEORGE S. PECK, of Youngstown, Ohio, read a paper in which he gave brief reports of five cases.

Dr. W. G. McDONALD, of Albany, contributed a paper on appendicitis, based on a clinical study of eighty-four cases. He said that three important landmarks had been established: 1. That practically all inflammatory processes in the right iliac fossa arose from the appendix. 2. That practically the appendix is always intraperitoneal, and that any operation undertaken for appendicitis that did not involve opening the peritoneum was false in conception. 3. That idiopathic peritonitis did not occur—many cases diagnosed as such were really cases of perforating appendicitis. The author classified the varieties as acute perforating, fulminating appendicitis with general peritonitis; acute suppurating appendicitis with local plastic peritonitis and abscess; and subacute appendicitis, variously termed catarrhal, chronic, relapsing, or obliterating appendicitis, or appendicular colic. The perforation occurred very much earlier than was commonly believed. Acute suppurative appendicitis with local peritonitis presented the most favorable field for operation during the attack. The removal of the appendix was to be undertaken with great circumspection when it lay in the wall of an abscess cavity. The third group of cases did not require operations during the first attack, but, if repeated attacks occurred, an operation during quiescence was demanded. The results in these cases were most favorable.

Dr. JOSEPH HOFFMAN, of Philadelphia, followed with a paper on surgical appendicitis.

(To be continued.)

Book Notices.

A Practical Treatise on Orthopædic Surgery. Designed for the Use of Students and Practitioners. By JAMES K. YOUNG, M. D., Instructor in Orthopædic Surgery, University of Pennsylvania, etc. Illustrated with Two Hundred and Eighty-five Woodcuts. Philadelphia: Lea Brothers & Co., 1894. Pp. viii-17 to 446. [Price, \$4.]

This handsome and well-printed volume gives a useful compendium of the art of orthopædic surgery, based on the author's experience and on recent literature. An examination of its pages emphasizes the fact, otherwise evident, that orthopædic practice is rapidly emerging from its stone age. In the treatment of Pott's disease jackets are relegated to a secondary position, and the steel antero-posterior support is preferred, except for disease in the lower lumbar region with lateral deviation, though their value, when more perfect means are not available, is generously recognized.

In another chapter the author uses these decided words: "The plaster-of-Paris jacket, myotomy, tenotomy, and forcible restoration under anæsthesia have, in the writer's opinion, no place in the treatment of lateral curvature." Corrective exercises and a light steel supporting apparatus are warmly commended. The ambitious desire, occasionally noticeable, to annex orthopædic practice to the domain of operative surgery, finds little encouragement in the views registered in this volume, whose author remarks that, while the orthopædic practitioner must be physician, mechanic, and surgeon, yet "measurement and the application of mechanical appliances will demand the greatest attention." In general the severer operations are called for only where conservative treatment has been imperfect or omitted, and in exceptional cases. Laminectomy for Pott's paraplegia is seldom indicated, and should be reserved "until complete sensory paralysis has resisted all [conservative] methods of treatment." "Traction by extension and counter-extension is the keynote of correct surgical treatment in hip-joint disease." For this purpose, the long traction splint is preferred, and if it is properly used excision is very rarely indicated. The author justly deprecates the senseless procedure of striking the heel to elicit hip tenderness as an aid to diagnosis.

A short chapter is devoted to arthritis deformans, which is said in its acute form to resemble rheumatism, and the reader is referred to two cuts (Figs. 194 and 195) of a case of osteitis deformans, a disease as different as possible from both of the former affections, since the joints are not affected; it is, moreover, characterized by extreme chronicity. In the chapter on congenital hip luxations Paci's method of manual reduction, the most promising of recent advances in the treatment of this troublesome disorder, is not mentioned. There is no reference to the joint affections of scorbutus, which are exceedingly liable to be mistaken for orthopædic disease. The style of the work is for the most part simple and clear, the views are moderate and safe, and the author is to be congratulated on his successful condensation of so much valuable material into such a moderate compass.

Lehrbuch der Haut- und Geschlechtskrankheiten für Aerzte und Studirende. Von Dr. MAX JOSEPH in Berlin. Zweiter Theil; Geschlechtskrankheiten. Mit 24 Abbildungen im Text und einer farbigen Tafel. Leipzig: Georg Thieme, 1894. Pp. viii-401.

By the term sexual diseases Dr. Joseph designates syphilis, soft chancre, and gonorrhœa, with their complications. He

believes with the large majority in their separate specificity, the cause of which, however, has only been demonstrated for the last. The author's views are moderate and free from dogmatism; he points out that there is no sharp line of demarcation in time between the secondary stage of syphilis with simple hyperplasias, and the gummy tumors of the tertiary, since the latter may appear before the hyperplastic reaction has subsided. These hyperplastic tissues, including the corresponding efflorescences, are contagious, provided a lesion of the skin or mucous membrane, however slight, is exposed to them. The gummy growths are not contagious; neither are the secretions (except the semen) nor the blood serum, though blood corpuscles and bits of tissue are. Syphilitic virus soon loses its virulence outside the body. The contagiousness of syphilis is greatest in the earlier stages, and diminishes with the duration of the disease, but no definite time can be fixed when it positively ceases. Marriage may be permitted in favorable cases one or two years after the last manifestations, or four years after the initial lesion. The syphilitic is proof against fresh infection during the first two or three years, the most contagious period; later, reinfection is possible, but rare. This possibility of reinfection is the best proof of the curability of syphilis.

The author recommends the early extirpation of the primary lesion, stating that this treatment is followed by milder secondaries. After the appearance of constitutional symptoms a course of inunctions of mercury is to be begun, and is to be repeated two or three times at intervals of several months, with varying treatment or rest in the intervals, according to the individual peculiarities of the case in hand. Iodide of potassium is to be prescribed for the tertiary manifestations and also for malignant cases and early joint pains.

BOOKS, ETC., RECEIVED.

Jahrbücher der Hamburgischen Staatskrankenanstalten. Herausgegeben von den Aerzten dieser Anstalten unter Redaktion von Professor Dr. Th. Rumpf, Direktor des neuen allgemeinen Krankenhauses Hamburg-Eppendorf. Band III. Jahrgang 1891-1892. Mit 46 Abbildungen im Text und 13 Tafeln. Hamburg und Leipzig: Leopold Voss, 1894. Pp. xxxvi-517. [Preis, M. 20.]

The Principles of Bacteriology. A Practical Manual for Students and Physicians. By A. C. Abbott, M. D., First Assistant, Laboratory of Hygiene, University of Pennsylvania, Philadelphia. Second Edition, enlarged and thoroughly revised. With Ninety-four Illustrations, of which Seventeen are Colored. Philadelphia: Lea Brothers & Co., 1894. Pp. xi-13 to 471.

Laboratory Manual of Elementary Chemical Physiology and Urine Analysis. By John H. Long, M. S., Sc. D., Professor of Chemistry and Director of the Chemical Laboratories in the Schools of Medicine and Pharmacy of Northwestern University. With Numerous Illustrations. Chicago: E. H. Colegrove & Co., 1894. Pp. 366.

Directions for Laboratory Work in Bacteriology. For the Use of the Medical Classes in the University of Michigan. By Frederick G. Novy, Sc. D., M. D., Junior Professor of Hygiene and Physiological Chemistry. Ann Harbor, Mich.: George Wahr, 1894. Pp. 5 to 209. [Price, \$1.50.]

The Senile Heart; its Symptoms, Sequelæ, and Treatment. By George William Balfour, M. D. (St. And.), LL. D. (Ed.), F. R. C. P. E., F. R. S. E., Consulting Physician to the Royal Infirmary, etc., Edinburgh. New York and London: Macmillan & Co., 1894. Pp. 1 to 300. [Price, \$1.50.]

Recherches cliniques et thérapeutiques sur l'épilepsie, l'hystérie, l'idiotie et l'hydrocéphalie. Compte-rendu du service des enfants idiots, épileptiques et arriérés de Bicêtre pendant l'année

1893. Par Bourneville, médecin de Bicêtre. Avec la collaboration de M. Boncourt, M. Cornet, M. Lenoir, M. Jules Noir et M. P. Sollier. Volume XIV. Avec 89 figures dans le texte et un plan. Paris: Félix Alcan, 1894. Pp. lxiii-4 to 375. [Publications du *Progrès médical*.]

Prescribing and Treatment in the Diseases of Infants and Children. By Philip E. Muskett, Late Surgeon to the Sydney Hospital, etc. Third Edition, revised, enlarged, and rearranged. Edinburgh and London: Young J. Pentland, 1894. Pp. xvii-334.

Transactions of the Medical Society of the State of New York for the Year 1894.

The President's Address delivered before the American Laryngological Association at its Sixteenth Annual Congress. By D. Bryson Delavan, M. D. [Reprinted from the *New York Medical Journal*.]

Gonorrhœa of the Rectum. By Henry Jacobson, M. D., St. Louis. [Reprinted from the *American Medico-surgical Bulletin*.]

A New and Distinguishing Sign of Latent Aneurysm of the Aorta. By William C. Glasgow, M. D., St. Louis. [Reprinted from the *New York Medical Journal*.]

A New and Perfected Enteric Pill. By Louis Waldstein, M. D. [Reprinted from the *New York Medical Journal*.]

The Production of Diseases by Sewer Air. By A. Jacobi, M. D. [Reprinted from the *New York Medical Journal*.]

Climatic Therapeutics in the Treatment of Pulmonary Tuberculosis. By Edward O. Otis, M. D. [Reprinted from the *Boston Medical and Surgical Journal*.]

Treatment of Strictures of the Male Urethra. By Julius Rosenstirn, M. D., San Francisco. [Reprinted from the *Journal of the American Medical Association*.]

A Word for the General Practitioner. What the General Practitioner should Know about Eye Diseases. By George Keiper, M. D. [Reprinted from the *Journal of the American Medical Association*.]

Clinical Contribution to the Surgery of the Appendix Vermiformis—Right Inguinal Hernia—Operation—Recovery. By William Davis Foster, M. D., Kansas City. [Reprinted from the *Medical Arena*.]

Dr. Friedrich von zur Mühlen: Ueber zwei neue Arzneimittel, das Tolpyrin und Orthotolpyrin. [Sonderabdruck aus der *Allgemeine medicinische Central-Zeitung*.]

Inebriety as a Disease, Analytically Studied. By R. M. Phelps, M. D. [Reprinted from the *Medical News*.]

Reports on the Progress of Medicine.

GENERAL MEDICINE.

By JOHN WINTERS BRANNAN, M. D.

The Strychnine Treatment of Pulmonary Consumption.

—Some two years ago we had occasion to review in the columns of the *Journal** an interesting book by Dr. Thomas J. Mays, entitled *Pulmonary Consumption; a Nervous Disease*. In that work Dr. Mays presented a strong argument in favor of the nervous origin of pulmonary phthisis. He believes that in the great majority of cases the pulmonary disease is the direct result of primary disease and debility of the pneumogastric nerves. Acting on this belief, Dr. Mays has employed strychnine in the treatment of the disease, and records his results in

* *New York Medical Journal*, 1892, vol. lvi, p. 556.

the *American Medico-surgical Bulletin* of May 15th. He is convinced that, next to physical rest and nutritious food, strychnine is the most important agent in the treatment of pulmonary consumption. Large doses must be given, beginning with a thirty-second of a grain four times a day, and increasing the daily amount an eighth or a quarter of a grain every eighth day until the limit of toleration is approached. In one case a sixth of a grain was given four times a day during a period of sixty days. According to the author no deleterious action of the drug was observed. Neither albuminuria nor diabetes was ever produced. In some patients, indeed, who suffered from albuminuria when they first came under observation, the albumin disappeared entirely under the strychnine treatment.

In considering the therapeutic influence of the drug on the various symptoms of phthisis, Dr. Mays states that it modifies favorably the cough and expectoration, the dyspnoea, the loss of appetite, the nervousness and sleeplessness, the vomiting, the constipation, the pain in the chest, the cardiac weakness, and also acts as a valuable adjunct in combating the anæmia which is so common an accompaniment of the phthisical condition.

The author believes that the useful action of strychnine on all these symptoms is accomplished through the medium of the pneumogastric nerves, and he also believes that its immediate action on the pulmonary disintegration is just as pronounced, and is brought about in the same way. His therapeutic observations, therefore, form another link in the chain of evidence which goes to prove that pulmonary consumption is primarily a disease of the nervous system.

The Symptomatic Tachycardia of Tuberculosis.—The tachycardia of chronic pulmonary phthisis is the subject of a monograph by F. Bezançon in the *Revue de médecine* of January 10th. This paper is of especial interest when taken in connection with the views of Dr. Mays, referred to above. Bezançon's observations are based upon four cases of pulmonary tuberculosis, in which the tachycardia became more and more marked, until the patient finally died from exhaustion of the heart muscle. Autopsies were obtained, and in every case one or the other vagus nerve was found compressed by tubercular bronchial glands. These findings might seem to lend confirmation to Dr. Mays's theories, but Bezançon does not view them in that light. Dr. Mays would argue that the pulmonary process was secondary to the compression of the vagus, whereas Bezançon regards the involvement of the nerve as simply an accidental result of the widely distributed tuberculosis.

Bezançon has collected a large number of other cases in which tachycardia developed in the course of pulmonary tuberculosis, and autopsy revealed compression of the vagus. In some of these cases, and in one of the author's own cases, histological examination of the compressed nerve showed destruction of the axis cylinders or fragmentation of the myelin, thus furnishing a ready explanation of the tachycardia. In the majority of the cases, however, the nerve tissue was entirely unaltered, or simply gave evidence of slight neuritis. In these latter cases, as Bezançon observes, we should expect to find a slowing rather than an acceleration of the heart's action. There are also cases reported in which tachycardia was associated with pulmonary tuberculosis, and yet no compression whatever of the vagus was found on autopsy. Various theories have been advanced to explain the cardiac symptoms in these cases. An important rôle is assigned by Bezançon to the toxins generated in the tubercular process. The toxins may act in two ways—either by setting up a neuritis of the vagus, such as is found in other infectious diseases, or by lowering the arterial pressure. Attention is called to the fact that Bouchard has isolated from tuberculin a substance which he calls ectasin,

which acts as a vasodilator. Arloing has demonstrated the same property in the products of the *Staphylococcus pyogenes* and other bacteria which are found so abundantly in tubercular cavities. As it is a matter of frequent observation that the blood pressure is lowered in tuberculosis, Bezançon's theory seems to be supported by the clinical facts. It only remains to be shown that lessened arterial pressure produces tachycardia, and, according to Bezançon, this has already been proved by Marey, who first established the physiological law that the heart beats more rapidly as the resistance in the peripheral circulation is diminished.

The Pathology and Treatment of Hæmoptysis.—Dr. Arthur Foxwell discusses the pathology and treatment of hæmoptysis in the *British Medical Journal* of April 21st.

Hæmoptysis may be secondary to cardiac weakness or it may be due to primary disease of the lung. The hæmorrhage occurring in cardiac disease is the result of thrombosis of the pulmonary arterioles caused by feeble circulation. The thrombosis produces an infarct and the hæmorrhage itself arises in the infarcted area. The pulmonary arterioles being non-anastomosing terminal vessels, the portion of lung beyond the occluded vessel is deprived of all blood from the pulmonary artery, as well as of the pressure which is derived from the pulmonary artery. The infarcted area is now only supplied with blood from the bronchial, œsophageal, and other small vessels; these are sufficient to keep the area full, but have not enough pressure to maintain a proper flow against the reflux pressure from the veins, which pressure is maintained by the other—unoccluded—branches of the pulmonary artery. Stagnation results; the affected tissues, including the walls of the involved vessels, necrose, and hæmoptysis often follows. It is evident that the hæmorrhage does not occur at the moment of the occlusion, but only after an interval during which vascular degeneration has taken place, allowing extravasation of blood. The amount of blood lost is not usually large, and a fatal issue directly from the bleeding is extremely rare.

Excessive strain of an otherwise healthy but weak heart may bring about a similar condition of things. Exhaustion of the right ventricle reduces the pressure in the pulmonary artery, and at the same time exhaustion of the left ventricle impedes the flow from the lungs into the left auricle; slowing and stagnation of the blood in the lungs ensue perhaps over a wide area, or, by inducing thrombosis, over two or three smaller areas, and in a day or two hæmoptysis arises. It is noteworthy that the spitting of blood never occurs immediately after the exertion.

Hæmoptysis due to primary disease of the lung usually occurs in association with the tubercle bacillus. As the author points out, there is no indissoluble bond between the spitting of blood and the bacillus of tuberculosis. The majority of cases of tuberculous phthisis run their course without hæmoptysis. Spitting of blood may also occur in emphysema and in fibroid phthisis, diseases in which bacilli play no rôle whatever. Nevertheless, hæmoptysis and tubercle are very closely related. Dr. Foxwell considers that they depend upon a common cause, the "*dispositio catarrhalis*" of the older writers, which he defines as a tendency to a sluggish catarrh occurring in places where the circulation is feeble. Where the catarrhal tendency and the feeble circulation both exist, there we have a constant focus of depressed activity; "such a slough of despond is the birthplace of hæmoptysis and the rich foster mother of the bacillus."

All hæmoptysis in tuberculous phthisis arises from a perforating ulceration of a vessel, or from the solution of its continuity after fatty degeneration and necrosis, or, by far the commonest of all, from the rupture of aneurysmal dilatation of its wall.

The treatment of hæmoptysis may be considered under two heads, according as the hæmorrhage is secondary to cardiac failure or is due to primary lung disease.

The indication in cardiac hæmoptysis is to prevent a repetition of the thrombosis. To effect this we have to strengthen the heart by horizontal rest and such tonics as strychnine and digitalis. The author finds hypodermic injections of strychnine, in the doses in which we are accustomed to give it by the stomach, to be the most efficacious of all means for stimulating the weakened muscle of the heart.

The indications in hæmoptysis due to primary lung disease are to quiet the action of the heart, to keep the blood in the systemic circulation and thus produce anæmia of the lungs, and to increase the coagulability of the blood. The first indication may be met by venesection if the pulse be strong, the individual full-blooded, or if venous congestion exist. An icebag to the præcordia also acts as a powerful cardiac depressant.

The blood may be kept in the systemic circulation by large doses of nitrites which relax the systemic arterioles. The constant supply of small portions of food will keep up a constant demand for blood in the alimentary tract. Ligatures may be applied to the extremities to prevent the blood reaching the right heart. Leeches to the anns or hot foot baths are also useful.

The coagulability of the blood is supposed to be increased by gallic acid and calcium chloride; hence it is well to give these drugs.

Of all the measures for the relief of hæmoptysis the induction of vomiting has the strongest clinical value. Hydragogue purgatives are also of great service. Of these, calomel possesses a double virtue, as mercury is one of the best drugs we have for lowering arterial tension. The great thirst which often attends prolonged bleeding may be relieved by sucking small pieces of lemon, as fluid drinks are to be avoided.

Finally, morphine should always be kept in mind, to maintain that "vascular serenity" which is an absolute essential in the treatment of hæmoptysis.

Affections of the Right Side of the Heart.—In the same journal of June 9th Dr. Thomas R. Bradshaw lays stress upon the importance of attending to the condition of the right ventricle in the study of cases of valvular heart disease. That affections of the left cavities of the heart seem to be more important than those of the right side is the natural consequence of the fact that disease on the right side is seldom primary. Its distinctive signs also are commonly overshadowed by those of the conditions with which it is associated. The author contends, however, that in most cases of valvular heart disease compensation is chiefly effected by means of an increased activity of the right ventricle, and that it is the failure of the latter that precipitates the onset of the common symptoms of backward pressure in the veins. So long as the right ventricle can propel the blood, the patient may continue to enjoy immunity from urgent symptoms, in spite of extensive valvular disease on the left side. The circulation in such a patient resembles the circulation in the fish. In the fish the blood is driven by the one ventricle through the gills, where it is aerated, and the *vis a tergo* suffices to drive it onward into the aorta, and so throughout the systemic vessels. In like manner, when there is great destruction of the mitral valve in man, the onward movement of the blood in the aorta must be largely dependent on the *vis a tergo* on the other side of the lungs, and in a certain degree the left ventricle becomes a mere channel for the blood to flow through.

The most frequent form of valvular disorder on the right side of the heart is tricuspid regurgitation. We meet with it associated with mitral disease—stenosis or incompetence—or with impeded circulation in the lungs from emphysema or

bronchitis. This regurgitation through the tricuspid orifice is due to the safety-valve action of the heart by which, when the right ventricle is overdistended, the chordæ tendineæ pull upon certain parts of the tricuspid valve in such a way that it no longer closes during systole. Thus a certain amount of regurgitation takes place until the ventricle has got rid of the excess of blood it contained. When more or less permanent dilatation has arisen from excessive internal pressure the same mechanism comes into play. We then see the symptoms of impeded circulation in the veins, and we may often distinguish a systolic murmur in the tricuspid area. When a mitral murmur is present it may be difficult to decide whether a tricuspid murmur also exists; but the latter may often be differentiated by its having a point of maximum intensity near the sternum.

Although increase of pressure in the pulmonary artery usually takes effect on the tricuspid valve, in some cases its action is manifested on the pulmonary valves. Probably pulmonary regurgitation from this cause would be more frequent than it is were it not for the safety-valve action of the right ventricle. The author narrates a case in which two murmurs were heard in the pulmonary area—the one systolic, the other diastolic. The systolic murmur was loud, had the rough quality of a direct murmur, and was conducted toward the left clavicle; the diastolic murmur was soft, was heard best in the second left intercostal space close to the sternum, and was also audible in the third space and faintly in the first. There was no history of rheumatism. A second case given by the author seems to have been one of rheumatic endocarditis affecting the tricuspid valve. A systolic murmur was heard all over the præcordia, with the point of maximum intensity in the tricuspid area. The murmur diminished in intensity in passing to the mitral area, and was not heard in the back.

In the foregoing instances the murmurs pointed to organic disease on the right side of the heart, but generally murmurs in the pulmonary region are to be differently interpreted. Hæmic murmurs are always systolic, and their character is usually easily recognized. A diastolic murmur is sometimes heard in this situation, when the other conditions make it unlikely that pulmonary regurgitation is present. The author relates a case in point in which the diagnosis was doubtful, but the absence of a pulmonary systolic murmur led him to exclude pulmonary regurgitation, since, according to Dr. Balfour, in all cases of pulmonary regurgitation the murmur has been double. A systolic murmur was heard at the aortic cartilage, and Dr. Bradshaw finally concluded that the regurgitant murmur was also aortic in origin, though it is not easy to say why it was not heard in the usual situation.

The Treatment of Aneurysm by Venesection.—In the *Lancet* of May 19th Dr. James T. R. Davison gives the details of three cases illustrating the benefit of bleeding in the treatment of aneurysm. In all three cases the symptoms were most urgent, and were promptly relieved by the abstraction of twenty-five to thirty ounces of blood from the arm. The first case was an aneurysm of the innominate artery and the ascending aorta with dilatation of the transverse arch.

The patient had frequent attacks of dyspnœa, evidently due to pressure upon the recurrent laryngeal. He had been under various forms of treatment, including that with iodide of sodium, with only slight relief. When Dr. Davison was called to see him he found him unconscious, with difficulty of breathing, his face cyanotic, and his pulse of high tension. The patient recovered consciousness after the bleeding, and has remained in good health up to the present time, a period of nine months. During this time he has taken iodide of sodium three weeks of each month, and applied a cantharides blister continually over the aneurysm.

In the second case the aneurysm also involved the innominate artery and ascending aorta, with some dilatation of the transverse arch. The symptoms pointed to compression of the innominate veins, especially the right. The œsophagus was also affected. The effects of the bleeding were again very marked. Under the use of iodide of potassium the patient continues free from urgent symptoms, though the right external jugular vein is full and the superficial veins of the chest are dilated.

The third case appeared to be one of aneurysm of the ascending and transverse aorta. The symptoms were coldness of the right arm, præcordial pain, pain and difficulty in swallowing liquids, and hoarseness of voice. An attack of sneezing was followed by inability to swallow solids and an increase of pain. Venesection was performed, and immediately the difficulty of swallowing and the pain disappeared. A similar attack a year later was again relieved by the same measure, though not so promptly. The iodide of potassium was given in this case also.

In the treatment of aneurysm there are three indications to be kept in view: These are the contraction of the aneurysm, the hypertrophy of its walls, and lastly the deposition of fibrin within its cavity. The first indication can be met by a copious depletion, together with absolute rest for several months and the ingestion of but a limited amount of liquids. The second indication can be carried out by the internal administration of moderate doses of iodide of potassium. The third indication requires a diet which, without being so rich as to stimulate the circulation unduly, will nevertheless be nutritive enough to produce a sufficient quantity of fibrin.

The principle advocated is not the impoverishment of the blood, but the temporary diminution of its volume and of its pressure, so as to enable the aneurysm to contract, and place it thus under circumstances more favorable for the operation of other remedial agents which tend toward its consolidation. Repeated bleedings at short intervals are admitted to be positively harmful. But the above cases show that judicious bleeding is a valuable measure, by means of which alarming symptoms of compression may be quickly removed, instant death sometimes averted, and the patient placed under favorable conditions for the prolongation of his life.

Syphilis and Arteriosclerosis.—At a recent meeting of the Berlin Medical Society, Dr. A. Fraenkel (*Berl. klin. Wochens.*, March 19, 1894) presented some specimens illustrating the relationship between syphilis and early arteriosclerosis. The specimens were from a woman, thirty-six years of age, who had been under observation for over a year. When first seen, she had the signs of aortic regurgitation, and complained frequently of headaches which were sometimes accompanied with attacks of syncope. There was a history of articular rheumatism. The patient's husband was syphilitic. The woman herself had had growths upon the head, which had opened spontaneously, leaving cicatrices which were still visible.

The patient improved under treatment and was discharged from the hospital. She afterward returned, suffering from severe attacks of angina pectoris, during one of which she died.

At the autopsy the coronary arteries were examined with great care. The left coronary was normal in every way; the lumen of the right, however, was entirely obliterated at its point of origin from the aorta. The change in the vessel was due to advanced arteriosclerosis, without doubt of syphilitic origin, as was proved by the presence of a gummy tumor, four centimetres and a half in diameter, situated in the ventricular septum. The sclerotic changes in the aorta extended throughout its whole extent down to the iliac arteries.

Fraenkel also calls attention to the frequency with which

syphilis appears as a factor in the development of aneurysms, especially when the arterial change takes place in early middle life. According to Walsh, sixty per cent. of true aneurysms are due to syphilis; other writers place the percentage as high as eighty. Of nineteen cases observed by Fraenkel, nine (forty-seven per cent.) were syphilitic, and all of these nine cases were under fifty years of age.

The Relative Proportions of the Two Proteids in the Urine in Cases of Albuminuria.—Dr. Francis D. Boyd discusses this subject in the May number of the *Edinburgh Medical Journal*. Previous observations have generally been based upon faulty methods, hence the results have not been trustworthy. Dr. Boyd employed the ammonium-sulphate method, which has been proved to be entirely accurate. Unfortunately the method is tedious, which accounts for the fact that so few observations have been published on the subject since the method was described by Dr. Julius Pohl in 1886. As a result of the study of numerous cases of albuminuria during the last three years, Dr. Boyd draws the following conclusions:

1. In albuminuria both the proteids of the blood are present as a rule, but there are certain exceptional cases in which this does not hold.

2. We can not diagnosticate the form of kidney lesion from the proportion of the two proteids in the urine.

3. The proportions of serum albumin and globulin may vary widely in albuminous urine.

4. Even in amyloid degeneration, marked by great emaciation of the patient, the globulin may not be in excess.

5. In the albuminuria of pregnancy, both serum albumin and globulin are present, the tendency being for the globulin to be in a proportionately large amount.

6. In the albuminuria of heart disease, when there is no chronic kidney disease, the globulin is usually in larger proportion than is commonly found in chronic interstitial nephritis.

7. In acute nephritis, when there is no hæmaturia, the serum albumin and globulin are, as a rule, about equal in proportion; but when there is blood in the urine, the globulin is proportionately large in amount.

The Significance of the Venous Pulse is the title of an article by Dr. James Mackenzie in the June number of the same journal.

The tendency of the right ventricle to dilate and permit a regurgitant stream of blood to flow back into the auricle during the systole of the ventricle, when undue opposition is offered to the performance of its work, has long been recognized. The manifestation of this regurgitation is found in the veins, chiefly in those at the root of the neck. This outward sign of the dilated right ventricle may be associated with no other symptom of heart failure, or it may be a prominent feature along with other symptoms of extreme weakness of the heart. The appearance of the movements in the veins is not always the same. There may be but one large wave during a cardiac revolution, or there may be two or three. When these movements are accurately timed, the causes of the individual movements can easily be recognized. Thus a wave preceding the carotid pulse can only be produced by the systole of the auricle. In like manner, when a wave occurs in the veins synchronous with the carotid pulse, it can be referred with certainty to the systole of the right ventricle. As this wave is due to blood regurgitating through the tricuspid orifice during the ventricular systole, and as during the ventricular systole the auricle is in diastole and is sucking blood into its cavity, the wave can not appear in the veins till the auricle is filled. When the tricuspid valves are incompetent the blood escapes during the ventricular systole from the ventricle in two directions—namely, through the pulmonary and tricuspid orifices; upon

closure of the pulmonary valves there is a temporary increase in the wave sent back through the tricuspid orifice. The wave due to the ventricular systole is thus divided into two parts. The greater the tricuspid incompetence, the sooner will the auricle be filled, and the earlier will the first portion of the ventricular wave appear.

In cases of heart failure due to organic disease, manifested by great tricuspid incompetence, the auricle may be so distended that it apparently becomes paralyzed. Under such circumstances the auricle ceases to manifest its activity by any venous wave, and there is then produced but one wave synchronous with and due to the ventricular systole. Such a wave usually presents a notch indicative of the time of closing of the pulmonary valves.

The venous pulse may thus be divided into two forms—the auricular venous pulse and the ventricular venous pulse. The first is that form which presents distinct evidence of the functional activity of the right auricle. The ventricular venous pulse only appears when there is organic disease of the heart itself (usually valvular disease). When the failure of the heart is functional and not due to organic disease of the valves, the auricular pulse persists to the end of the wave.

Similar types of pulses may be recognized in the liver. Here the pulse only appears when there is organic disease of the heart.

Relapses in Typhoid Fever.—Dr. Hugh U. Stewart contributes an instructive paper on this subject to the *Practitioner* for March. The writer defines a relapse as a second attack of typhoid fever, with a repetition of all the phenomena of the first illness, occurring in a patient who has become or is just becoming convalescent from the primary attack. The clinical history of fifty consecutive cases collected from the records of Guy's Hospital showed that men were especially liable to relapses, thirty-one of the patients being males and only nineteen females. Age appeared to have no special influence, relapses simply occurring most often at that period of life at which typhoid fever is most common.

The interval of apyrexia between the primary attack and the relapse was, in the majority of cases, from five to eight days; but it may vary from one up to twenty-four days. In cases in which there were two relapses, the usual interval between the first and second relapse was at least double that between the first attack and the first relapse. The relapse is nearly always of shorter duration than the primary attack; and in cases with two relapses the second was never as long as the first.

Perhaps the most important clinical feature in these cases was the state of the bowels. Constipation was present in sixty-two per cent., the bowels were regular in twenty per cent., leaving only eighteen per cent. in which there was more or less diarrhoea. These figures seem to justify the view that constipation has an important relation to the occurrence of relapses.

In order to study the pathology of relapses, Dr. Stewart collected forty fatal cases from various sources. These cases show without a doubt that there is an important difference in the seat of ulceration in primary attacks and in relapses. In thirty-four of these forty cases, or eighty-five per cent., the large intestine contained recent ulcers, and the small intestine contained healed ulcers; while in sixty-five cases of single attacks collected for comparison, forty-eight, or seventy-five per cent., had the large intestine quite healthy, but the small intestine showed recent ulcerations. The author therefore holds that a relapse is due to a reinfection of the large intestine by sloughs derived from some part of the small intestine above.

It is generally agreed that a fatal termination to a relapse of typhoid fever is very rare. This is easily explained, according

to Dr. Stewart, when we remember, first, that the relapse, owing to the acquired partial immunity, is not so severe as the primary attack, and, secondly, that the large intestine, which is the chief seat of ulceration in relapse, is thicker than the small. Thus the very important danger of perforation is to a large extent removed in a relapse, and we find accordingly that the prognosis, far from being worse, is considerably better than that of a single attack.

Epidemic Jaundice.—In the *British Medical Journal* of May 26th Dr. William Rankin comments briefly upon two series of cases of jaundice of an epidemic nature. The first series, eleven in number, was seen during the months of July and August of last year. All the cases occurred within a very limited area in the low-lying part of his district. The symptoms were alike in all cases. During March and April of the present year a similar series of cases, twenty-three in number, came under his notice in the high-lying part of his district, all within a radius of half a mile. Only young people were affected, the oldest being thirteen years of age. In addition to the jaundice, the patients complained of headache, nausea, vomiting, anorexia, and general malaise. The tongue was coated; the stools were generally pale and clay-colored and of stiff consistence. In some cases, however, there was diarrhoea. In no case was there any fever while the patient was under observation. The medicinal treatment consisted of two sharp calomel purges at an interval of three days, and a mixture of nitrohydrochloric acid and nuxvomica given for a week or ten days. A milk diet was enforced, but the patients were not confined to bed. Recovery was rapid and complete.

Dr. Rankin was at first inclined to consider the jaundice to be due to ordinary gastro-duodenal catarrh caused by "errors in diet" or "catching cold." As the epidemic developed, however, it seemed remarkable that so many cases should occur within so short a time, and that they should be limited to a comparatively small area. There was no recognized influenza in the neighborhood at the time, though it is possible that the affection itself was a form of influenza attacking only the gastro-intestinal tract. At all events, Dr. Rankin believes that he had to deal with a disease of a distinct specific nature, like influenza, and fortunately of a mild type. As regards the exact nature of the poison he is unable to form any definite opinion. The jaundice itself might have been either of the obstructive or non-obstructive form; in the former case being due to a gastro-duodenal catarrh of specific origin; in the latter, to a poison of a specific nature circulating in the blood.

Miscellany.

The Tri-State Medical Society of Alabama, Georgia, and Tennessee will hold its sixth annual meeting in the Kimball House, Atlanta, Ga., on October 9th, 10th, and 11th, under the presidency of Dr. J. B. S. Holmes, of Atlanta. The programme includes the following papers: The Responsibility of a Class of Criminals from a Medico-legal Point of View, by Dr. J. C. Le Grand, of Anniston, Ala.; The Treatment of Stricture of the Urethra by Electrolysis, by Dr. P. L. Brouillette, of Huntsville, Ala.; The Obstructive Urinary Diseases, by Dr. W. L. Gahagan, of Chattanooga, Tenn.; Urethral Surgery Ten Years Ago and To-day, by Dr. T. C. V. Barkley, of Chattanooga; Reflex Neurosis in the Male, by Dr. Andrew Boyd, of Scottsboro, Ala.; The Pathological Import of Albumin in the Urine, by Dr. E. B. Ward, of Selma, Ala.; How to do Ab-

dominal Section without Fuss, Feathers, and Foolishness, and with Immunity from Sepsis, by Dr. Joseph Price, of Philadelphia; Puerperal Septicæmia, with Cases illustrating the Several Varieties, by Dr. J. R. Rathmell, of Chattanooga, Tenn.; Reform in the Treatment of the Neurotic and Insane Viewed from the Gynæcological Standpoint, by Dr. Charles A. L. Reed, of Cincinnati; The Essentials of Obstetric Nursing, by Dr. R. R. Kime, of Atlanta, Ga.; The Pernicious (or Inveterate) Vomiting of Pregnancy—a Plea for the Mother, based on Cases in Actual Practice, by Dr. E. A. Cobleigh, of Chattanooga, Tenn.; The Induction of Labor to Prevent Blindness, by Dr. Frank Trester Smith, of Chattanooga, Tenn.; The Slaughter of the Innocents, by Dr. E. Van Goidsnoyen, of Atlanta, Ga.; The Prognosis and Treatment of Placenta Prævia, by Dr. Richard Douglas, of Nashville; Uterine Cancer, by Dr. George R. West, of Chattanooga, Tenn.; The Treatment of Uterine Fibroids, by Dr. W. Gill Wylie, of New York; A Report of some Rare Surgical Lesions connected with the Liver, by Dr. John A. Wyeth, of New York; The Treatment of Stone in the Kidney, by Dr. W. E. B. Davis, of Birmingham, Ala.; Tuberculosis of the Kidney and Bladder, by Dr. H. Berlin, of Chattanooga, Tenn.; the president's address: Some Causes leading to Invalidism in Women, by Dr. J. B. S. Holmes, of Atlanta, Ga.; Amputation of the Mamma for Carcinoma, and the Treatment of the Axilla, by Dr. B. W. Bizzell, of Atlanta, Ga.; Excision of Malignant Tumors of the Breast, by Dr. Willis F. Westmoreland, of Atlanta, Ga.; Some Remarks upon Brain Surgery, with Reports of Cases, by Dr. Paul F. Eve, of Nashville; The Surgical Treatment of Empyema, by Dr. J. A. Goggans, of Alexander City, Ala.; Some Points in Rectal Surgery, by Dr. J. M. Mathews, of Louisville, Ky.; Appendicitis—its Surgical Treatment, with Report of Cases, by Dr. R. J. Trippe, of Chattanooga; The Treatment of Injuries and Inflammation of the Joints, by Dr. William L. Nolen, of Chattanooga; Burns and the Treatment thereof, by Dr. T. Ellis Drewry, of Griffin, Ga.; Is there Danger of not getting Good Union after Tenotomy? by Dr. C. W. Barrier, of Columbus, Ga.; The Hygienic Treatment of Syphilis, by Dr. T. M. Baird, of Hot Springs, Ark.; Mixed Infection, by Dr. M. B. Hutchins, of Atlanta; Electro-therapeutics, by Dr. J. P. Stewart, of Chattanooga; Headaches, their Ætiology and Treatment, by Dr. R. P. Johnson, of Chattanooga; Migraine—its Ætiology and Treatment, by Dr. Hugh Hagan, of Atlanta; Tuberculosis of the Nasal Bones, by Dr. B. F. Travis, of Chattanooga; Adenoids and their Sequelæ, by Dr. Arthur G. Hobbs, of Atlanta; Paresis and Paralysis of the External Rectus of the Eye, with Reports of Two Cases, by Dr. Dunbar Roy, of Atlanta; The Use of Hydrastis Canadensis in Diseases of Mucous Membranes, by Dr. P. R. Cortelyu, of Marietta, Ga.; The Combination of Carbolic Acid and Camphor as an Antiseptic and Local Anæsthetic, by Dr. William Perrin Nicholson, of Atlanta; The Treatment of Pneumonia in Children, by Dr. Frank S. Parsons, of Philadelphia; The Treatment of Small-pox, by Dr. C. H. Holland, of Chattanooga; Some Practical Points in the Treatment of Typhoid Fever, by Dr. James B. Boid, of Atlanta; The Hygiene of the Hospitals and Prison Camps of the Georgia Penitentiary, by Dr. W. O'Daniel, of Atlanta; An Outline of the History of Medicine and Surgery in Georgia, by Dr. L. B. Grandy, of Atlanta; Unusual Nervous Phenomena in a Case of Fracture of the Fifth Cervical Vertebra, with its Pathology, by Dr. W. C. Townes, of Chattanooga.

The Treatment of Acute Coryza.—The *Presse médicale* for September 15th has an article on the abortive treatment of acute coryza in which it is stated that the abortive method, employed on the first day, may often prove successful and is particularly recommended for persons in whom acute coryza is

commonly only the prelude of otitis or laryngo-tracheitis. Brandt's remedy, said to be very popular in Germany, is as follows: Pure carbolic acid, ammoniacum, each, nine parts; alcohol, three parts; distilled water, twenty parts. A little sponge wet with this solution is to be placed in a paper cone, through which the vapors are to be inhaled by the nose.

The following procedure, recommended by Unna, of Hamburg, sometimes gives rise to surprising results: At the outset of the coryza the nasal passages are to be sprayed with a small quantity of a mixture of one part of ichthyol and one hundred parts each of ether and alcohol. This application of the spray is to be made only once.

Schrötter recommends practicing antiseptics of the nasal passages by moistening them several times in the course of a day with the following solution, previously warmed: Corrosive sublimate, two thirds of a grain; Sydenham's laudanum and cherry-laurel water, each, twenty drops; distilled water, four ounces and a half.

The following powder is recommended: Boric acid, seventy-five parts; salol, twenty-five parts; menthol, one part; cocaine hydrochloride, two parts and a half. These ingredients are to be reduced to a fine powder, and a good-sized pinch is to be snuffed about once an hour. This powder, which is at the same time antiseptic and analgesic, is said to cause the sneezing to cease immediately, to restore permeability of the nose, and often to put a stop to the coryza in the course of twenty-four hours.

Sometimes these abortive measure are aided at the very outset of the disease by an energetic sweat, preferably brought about by the use of a vapor bath.

The Journal of the American Medical Association announces the approaching removal of its quarters to Nos. 82 and 86 Fifth Avenue, Chicago, and states that it will henceforth be printed on its own presses. We congratulate our contemporary on these signs of prosperity.

Tea-inebriation.—The *American Therapist* for September publishes a criticism of the report of the board of managers of the Pennsylvania Hospital, by Dr. James Wood, in which he remarks that he may be permitted to criticise the liberality displayed in that institution in the supply of tea and coffee, considering the deleterious effects of their indiscriminate use among persons who are supposed to be sane.

The writer has already reported a hundred and twenty-five cases of tea-inebriation. In the study of these cases it was found that seventy-two per cent. of the subjects were persons generally known as nervous; twenty per cent. had frequent attacks of faintness; fifty per cent. were troubled with gastric or intestinal indigestion with all of the attending ailments; three per cent. had seriously contemplated suicide; forty-five per cent. were sufferers from persistent headache or capital neuralgia; ten per cent. had spells of great depression; twenty per cent. were despondent; fifty per cent. were excited; nineteen per cent. were troubled with perceptible palpitation of the heart; and twenty per cent. had insomnia, and when it was not complete, what little sleep they were able to get was greatly troubled by the most harrowing nightmares and dreams. In twelve per cent. increasing muscular tremors were noticed, and among quite a number well-marked hallucinations, especially those of impending death and robbery. Such a picture as this, says the author, presented to the thoughtful physician, is most deplorable in every respect. These poor individuals often confess to a degree of tea-drinking which, without question, makes the habit an actual dipsomania.

The author is studying the place of tea as a causative agent in insanity in this country. In the reports from all the institu-

tions for the insane in Ireland, he says, tea-tipping is given a most prominent place, and those in charge of these institutions do not hesitate to say that it is a direct cause of insanity.

The writer has traced many cases of insanity to the immoderate use of tea. Every intelligent physician knows that coffee interposes serious obstacles in the treatment of occult diseases associated with or dependent upon hepatic torpor. Yet, in this institution there are men consuming coffee at the rate of thirty pounds a year, each, and women consuming thirty-seven pounds of coffee and thirteen pounds of tea a year, each. This would be ten times as much as sane people ought to have. No wonder, says Dr. Wood, that the record of recoveries is so low as thirty-one and thirty-two per cent. among men and women respectively.

The Use of Pilocarpine in the Treatment of Acute Articular Rheumatism.—In the *Journal des sciences médicales de Lille* for September 15th there is an article on this subject by M. Drappier, of Ardennes, in which he says that since the introduction of salicylated preparations in the therapeutics of this disease all other treatments have been completely abandoned. Sodium salicylate, which is the most frequently used, causes a rapid diminution of pain, fall of temperature, and disappearance of œdema of the articular tumefactions. Its abortive action has made it the preferred remedy, the specific in this disease. In certain cases, however, it gives rise to toxic symptoms, so that it is impossible to continue its use, and it is necessary to resort to other means to alleviate the patient's sufferings.

M. Drappier relates the following case in which pilocarpine was employed with good results: A man, forty-five years old, suffered with acute articular rheumatism for ten years. In the beginning, the salicylated medication was successfully used, but gradually the action of the medicine lessened, and from one hundred and twenty grains the doses were progressively increased to two hundred and twenty-five grains, and on one occasion the patient took two hundred and seventy grains, which produced only a very slight sweating and did not bring any appreciable alleviation. Very soon this immoderate use of sodium salicylate provoked such gastric intolerance that its further employment was impossible; it was used also in injections, but without success; antipyrine was tried, but no good results were obtained. Vapor baths or hot-air baths were then prescribed, but they had little effect, and finally hot poultices constituted all the treatment until March 2d, when the patient had a very acute and painful attack. The author then made an examination and found that the right arm and the left wrist were red and very much tumefied. The least movement was impossible, on account of the pain it provoked. Before the author's visit the patient had tried the sodium salicylate, but it had brought on vomiting. M. Drappier decided to try pilocarpine, and he gave a subcutaneous injection of three twentieths of a grain of nitrate of pilocarpine. The result was abundant sweating, and that night the patient slept for a short time. On the following day the pain returned, but was less intense; in the evening another injection was given, and the patient was able to sleep all night. On the fourth day the pain disappeared, but the treatment was continued two days longer, at the end of which time no inflammatory or painful symptoms were observed. The patient had had no relapse and was now entirely cured and able to work.

The employment of sudorifics in the treatment of acute articular rheumatism, says M. Drappier, is not new; they have been given in the form of baths or drinks. Gübler has also made some trials with jaborandi and pilocarpine, but these attempts have not been renewed. Meanwhile, the preceding ob-

servation proves that this remedy should not be ignored when the employment of a salicylate is impossible. Of course, says M. Drappier, no conclusion can be drawn from an isolated case, and it can not be said that pilocarpine is an infallible remedy in rheumatism, but the facts just cited prove that, in certain cases, its employment may be of real use.

Prizes Offered by the Belgian Academy of Medicine.—

The *Lyon médical* for September 9th announces the prizes for the year 1895 as follows: The first prize, of eight hundred francs, will be given to the author of the best work on the following subject: Explain the indications, the technique, and the immediate, remote, and definitive results of operations on the biliary canal—the work to be based as much as possible on personal observations.

The second prize, of seven hundred francs, will be given to the author of a work in hygiene on the following question: Determine, as much as possible by experimental researches, what are those diseases (besides the following: glanders, tuberculosis, trichinosis, measles, rabies, and anthrax) the changes due to which should make us reject for public consumption the flesh of animals attacked by them.

The date named for the close of the competition in these two subjects is April 15, 1895.

A Case of Kerosene-oil Poisoning.—Sheik Karim Buksh, of Mackeypore Tea Estate, Assam, in the *Indian Medical Record* for August 16th, relates the case of a boy, two years old, who inadvertently swallowed an ounce of kerosene oil, and two hours later showed well-marked symptoms of kerosene poisoning. His temperature was subnormal, 96.8° F., the skin was cold and clammy, the face was deadly pale, the breathing was stertorous, the eyes were suffused, and the pupils were somewhat dilated; the pulse was small, thready, and rapid, and the abdomen was tense and tympanitic. He was slightly unconscious, but gave evidence of feeling pain when the abdomen was pressed. Thirty grains of ipecac were given as an emetic, and in fifteen minutes some food mixed with the oil was ejected. Sulphuric ether was then given. A few hours later a dose of castor oil was prescribed, which acted freely in three hours. Gradually the temperature rose to 101°, but subsided on the following morning, when, after a good sleep, consciousness returned, and all the unpleasant symptoms had disappeared.

The New York Academy of Medicine.—At the next meeting of the Section in General Surgery, on Monday evening, the 8th inst., patients will be presented, and Dr. C. N. Dowd will read a Report of Two Cases of Multiple Subcutaneous Tumors.

At the next meeting of the Section in Genito-urinary Surgery, on Tuesday evening, the 9th inst., patients and pathological specimens will be presented, and Dr. S. E. Brewer will read a paper (title to be announced).

The Distribution of the Sexes.—The *Union médicale* for September 4th says that the number of women in the world is nearly equal to that of men. In France the numbers approach more nearly to equality than in any other country, there being 1,007 women for 1,000 men. For the same number of men in Sweden there are 1,064 women, and in Greece only 933 women. In the French colony of *Réunion* there are 547 creole women for 1,000 provincial Frenchmen, colored men included. In Hong Kong there are 1,000 men for 336 women.

An Ointment for Urticaria.—The *Practitioner* recommends an ointment consisting of thirty parts of vaseline, from three to six parts of zinc oxide, and from three to six tenths of a part of menthol or phenol, to be applied to the wheals.

Original Communications.

A CASE OF LARYNGECTOMY BY A NOVEL METHOD.*

BY H. L. SWAIN, M. D.,
NEW HAVEN, CONN.

THE only excuse which I have to offer in appearing before this association with the report of a single case of laryngectomy is the desire to submit to your judgment the method adopted, that, by the light of your scrutiny, it may be decided whether a repetition of the procedure would be warranted in future cases. At the same time, as removal of the larynx is not a frequent operation, a discussion of the method will not, I trust, be wearisome to you.

An operation for the removal of a carcinoma from any organ or portion of the body is looked upon with favor, accordingly as it more or less perfectly accomplishes the complete removal of said growth. And, in the second place, any given mode of operating takes precedence of the others as it is able to accomplish the first results with the least danger to the life of the patient, the least impairment of function and usefulness of the part, the least discomfort to the patient, and the least outward deformity, in the order named.

I take it that the experience of the gentlemen present agrees with my own in the particular that in only very rare and exceptionally favorable cases can we by any other than the complete laryngectomy successfully remove the malignant growths of the larynx. What Dr. Delavan said last year in his paper concerning the withholding of statistics as regards the removal of malignant growths from the larynx I believe to be very true. If every case were reported, a different-looking table of mortality would appear, and hitherto the record has been bad enough and far from encouraging. But I think the attempts at removal by the less radical measures have been less generally reported when unsuccessful. The major operation is reported, the minor (such as thyrotomy and half removal of the larynx) are forgotten and unreported, because so very frequently followed by recurrence. Hence statistics show wrongly for both. Certainly, my own experience in such minor operations, though limited, has not been encouraging. The last thyrotomy, which was done only last year, when every chance of success seemed to be on the side of the operation, was followed by recurrence and death of the patient within fourteen months. But, granted that my own experience may have been limited and sad, still, theoretically, the complete removal of the larynx offers the surest way to secure a removal of an intrinsic carcinoma beyond the possibility of a recurrence. This being acknowledged, one must consider the objections to the operation. Certainly it is a dangerous operation, for, as has been shown again and again, many of the cases die from the immediate effects of the operation itself. The mortality has been shown to be due

to the following events: The shock of the operation as such; the effect of the removal of the larynx upon the heart and general circulation; the loss of blood; the penetration of this latter into the lungs at the time of the operation; secondary hæmorrhage; inspiration of the discharge from the wound, making a septic pneumonia; the infection of the general wound by the penetration of the secretions of the mouth pure and simple, and, when containing portions of food, increasing the danger of septic pneumonia; the difficulty in feeding the patient after the operation even by a tube, and the large wound, which must heal up by granulation, free to infection. The operation being recovered from, there remains a hole from the patient's pharynx into the neck, which keeps the danger of inspiration pneumonia still hanging over the patient like the sword of Damocles, and the usual tracheal opening, while between lies the large median wound to slowly heal. The patient can not talk, can not eat, can not even enjoy the luxury of a swallow of cold water, unless he effects a closure of the wound in the pharynx. He is still fed, but through an œsophageal tube, for a long time, and finally, when that is dispensed with, can only swallow as he stops up the opening from the throat. When later the condition of the wound permits, if his surgeon is gifted with the proper ingenuity, an artificial larynx is inserted, and, with a caricature of a voice, he is released from the hospital—alive, to be sure, but is he very happy? Notwithstanding all these dangers and discomforts, the operation, even by the older methods, is deemed and is justifiable.

Now, any method of operating which would lessen any one or all of these dangers would especially recommend itself as of value according to the premises at the beginning of this article. The chiefest danger to life outside of unskillful technique and accidents occurring in performing the operation is unquestionably that of septic infection or septic pneumonia.

Bardeleben found that sewing the trachea to the skin and shutting off the communication with the mouth changed his mortality from the operation from four deaths in five to four straight successes. He later opened the wound in the neck to make room for the artificial larynx.

Poppert, of Giessen, following the same idea, operated in a case, sewing up the pharynx wound permanently and stitching the trachea forward into the median incision in the neck. The patient was immediately able to swallow fluids, and could speak in whisper tones. The voice later increased in power.

Hans Schmid,* as long ago as 1888, reports a case where inadvertently the same result was obtained and the patient was able to speak in a hoarse monotone voice, but withal sufficient to get along with under ordinary circumstances.

In addition to these examples of operating without the pharynx opening, you will all surely remember a certain Quaker City patient who was exhibited by Professor J. Solis-Cohen at the last meeting of our association. Here

* Read before the American Laryngological Association at its sixteenth annual congress.

* These references are excerpts from an article by J. Solis-Cohen in the *Archiv für Laryngologie und Rhinologie*, Band i, Heft 3.

was a man who, without his larynx, spoke easily and audibly by what was termed a buccal voice. No communication existed from the pharynx with either the trachea or exterior of the neck, save a very small fistula opening externally. The patient was able to swallow liquids and solids easily and comfortably, and, moreover, was able to get along without any tube in the tracheal opening. His larynx had been entirely removed by a series of operations, the lips of the wound sewed together, and the wound into the pharyngeal cavity altogether closed. This made an anterior wall to the œsophagus, and, being elastic and distensible, the patient had succeeded in learning to dilate it sufficiently to afford a reserve of air—a sac—which enabled him to say a word or two without refilling. It was this air which the patient propelled against some tense, vibratory surface, tension being produced by the constrictors of the pharynx, and produced sounds which, modified by the mouth, tongue, and lips, became speech*—a wonderful exhibition of how Nature may be depended upon to help fill the gaps in space and function when intelligently assisted. Save for the fact that the patient was unable to make any connection between his lungs and his mouth, and did not get his air properly moistened, sifted, and warmed, he was every whit as comfortable as the generality of people, and his functional capacity in the world but little damaged.

The salient points were, then, that he could talk as well and better than most patients with an artificial larynx, he could swallow immensely better, he had no mechanical contrivance which might at any time get out of gear, which needs attention and constant cleansing, and he had no other wound or disfigurement of the neck than the tracheal wound, which latter he could cover up very nicely. A further advantage was that there was no irritation of the wound from the tubes—tracheal and artificial larynx—and he was in no way worse off than those who have to breathe through a tracheotomy tube.

It will be thus seen that these cases—the results some of chance, others of a definite purpose—were better than the older methods in these following particulars:

1. The danger to life from inspiration pneumonia was very much less, owing to the shutting off of the mouth.
2. The patients could swallow with the greatest of ease as freely as usual.
3. The most wonderful of all, in at least three of the cases a voice useful if not beautiful, and fully as satisfactory as with any artificial larynx, was obtained, and that without the bother or trouble which the latter always is, while, furthermore, the possibility of starting a recurrence by the irritation of a constantly present foreign body—the artificial larynx and tube—could be entirely avoided.
4. The patients were very comfortable and not nearly as disfigured as with the artificial appliances.

Therefore all the conditions demanded at the beginning of the article were fulfilled.

A case of epithelioma of the larynx having presented

itself, after much serious discussion of the matter with Dr. W. H. Carmalt, the attending surgeon at the State Hospital, it was determined to remove the larynx according to the methods to be related. On the day previous to that set for the operation Dr. Carmalt and the writer rehearsed the operation on the cadaver and found it possible to outline every step as it later was accurately carried out on the patient.

The previous history of the patient is as follows:

Mr. S., a German, joiner by trade, consulted me at the dispensary on the 18th of October, 1892, for a hoarseness which had existed without pain or coughing since last summer. Patient was not aphonic, but simply very hoarse. Never previously hoarse for long at a time. Family history good.

Status Præsens.—A healthy-appearing man of middle height, forty-two years old, well nourished, with no outward deformity of neck or chest. Lungs, chest, and abdominal organs were healthy. Mouth in order. Pharynx bluish-red, as so often seen in smokers and beer-drinkers. Larynx slightly congested in appearance, but presenting on the right vocal cord a tumor. The latter was as large as a good-sized pea, projected from the free edge of the cord in about the middle, and possessed of a broad base and firm consistence. Color was light red, evidently due to its abundant vascularity. No swelling or infiltration of the rest of the true or false vocal cord. No immobility of the cord other than pure inertia.

Diagnosis was made of a fibroma of the vocal cord and attempts were immediately begun toward its removal. Owing to the broad attachment and firm consistence of the tumor, forceps proved useless and so did the snare. The attempt was about to be made to slit it off with the knife when patient disappeared and returned in December last after more than a year's absence with a vastly different condition of things present. Instead of a tumor, there was an ulcer and a defect of the vocal cord where it had been. The false vocal cord had begun to swell. There was no excrescence of any kind visible. Later a very distressing cough developed, and as the swelling and ulceration began to increase, a question as to tuberculosis arose. This was finally settled negatively and the cough got better about February 1st. Just previous to this time some subchordal swelling developed, and later the whole lateral surface of the larynx seemed to be elevated and narrowed the lumen. The false vocal cord was smooth and swollen sufficiently to completely cover in the true, and, although the diagnosis was made of epithelioma, nothing presented itself until the 1st of March which could be removed to examine microscopically. The glands in the neighborhood were enlarged. There were no subjective pains; some soreness on swallowing.

At this time the stenosis of the larynx had become so alarming that the patient was admitted to the hospital for tracheotomy. This was done March 5th under cocaine. Patient recovered from the operation quickly, and the swelling in the glands disappeared in a few days. About this time a small excrescence appeared, jutting out from the ventricle. Attempts were frequently made to get a piece out large enough to make an accurate preparation for the microscope in order to settle the little remaining doubt of the existence of a true carcinoma. This was finally done just previous to the operation.

The condition of the larynx was then as follows: Right half of larynx completely filled out by swelling, which, at least in the case of the false vocal cord, completely blocked the larynx, leaving just space enough to see the left cord on its posterior third. This part, the epiglottis, and both arytenoids were entirely free from disease. No glimpse of the interior of

* In the *Medical News* of March 17, 1894, Harrison Allen gives a number of very interesting facts concerning the production of voice in this case. It is somewhat disappointing that Professor Allen could not have kept up these observations longer, as he had desired to do.

the larynx was to be had, but, as its exterior was perfect, the conclusion was fair that the whole of the tumor could be removed.

The operation was performed on March 18th by Dr. Carmalt, assisted by Dr. W. W. Hawkes and the writer and in the presence of Dr. J. Solis-Cohen, of Philadelphia, whose advice on the occasion was very helpful. The integuments having been cleansed, the anaesthesia was begun at 10.30 A. M. The first step was to carry the incision from the lower border of the tracheotomy wound down to the sternum. The trachea was bared and the incision carried down through the third and fourth tracheal rings. The old cannula was withdrawn and a sponge Trendelenburg cannula introduced. This had been so arranged that the sponge was very dry and absolutely flattened around the tube. A little water was conducted to it through the usual tube for inflating the regulation rubber bag. The sponge immediately swelled enormously and perfectly closed the trachea so that only once during the operation did it leak air, and on its final removal had only let through a very little blood. This was due to the sponge not being absolutely round. It also caused no irritation. Threads were secured to the cut ends of the first tracheal rings, but only one held, the cartilage being too brittle. The incision in the skin was then extended upward to the hyoid bone in the median line and a cross cut made to the sterno-cleido-mastoid of either side. The larynx was then carefully laid bare. Each bleeding point was checked as we went along. When finally all was cleared away, a director was carefully passed back of the trachea between it and the œsophagus and acted as a guide to the bistoury which severed the larynx from its neighbor, the trachea. A strong hook now was stuck into the larynx, and very carefully the latter was dissected away from the anterior wall of the œsophagus from below upward. When the ary-tænoid cartilages were reached the direction of the incision was changed and directed toward the base of the epiglottis, including in its path the mucous membrane covering the ary-tænoïds and portions of the ary-epiglottic folds. The long cornu of the thyreoid cartilage was cut across. The epiglottis was finally cut across just through the tuberculum and the larynx soon freed from all attachments. Careful examination showed only one slightly suspicious spot on the mucous membranes in this locality, which had been retained, and that was carefully removed. The epiglottis was then stitched to the posterior border of the opening which had previously been the rima glottidis and closed the ring completely, thus bringing the epiglottis in contact with the ary-tænoid mucous membrane, converting the ring into a linear wound running from side to side. A perfect anterior wall was thus made for the œsophagus.

Examination of the upper border of the trachea showed that on the right side there was a decided evidence of epithelioma, and so a portion of two rings on that side had to be pared away. The other side was trimmed to match.

Everything being ready and all hæmorrhage having been stilled, the wound was sewed up with continuous catgut suture, beginning with the cross incision in the skin at the top of the wound. When the trachea was reached a few strong sutures were introduced in front to prevent the trachea slipping downward, and then the cannula was removed. This was followed by the complete stitching in of the trachea into the wound, making a round opening which turned upward and forward. Wound was dressed with simple dry dressing. No tracheal tube was inserted. Operation was finished at 1.30 P. M.

During the entire time the patient had been perfectly anaesthetized and only once gave any signs of weakness. This was when the larynx was being taken out. Whether the vagus was a little pressed upon in some way by the instruments or cannula or whether the tracheal tube was stopped did not ap-

pear. He did not breathe for a few seconds, but later concluded to go on and there was no further trouble.

He recovered well from his ether, and, save for a little nausea, was very comfortable. He was made to lie flat on his back and the foot of his bed was kept raised, so that the head was lower than the feet for twenty-four hours. When thirsty he was allowed to sip a little sterilized water, which he swallowed easily and without much pain. He was fed through a tube in the œsophagus.

During the first few days the mucus stuck most tenaciously to the opening of the trachea, and when later the wound swelled up, especially at the sternal border, the tracheal opening was considerably below the level of the neck, and thus the removal of mucus was very difficult. The swelling caused a stitch or two to tear out on the third day, and ice was kept constantly upon it. Gauze wet with Thiersch's solution covered the opening, the

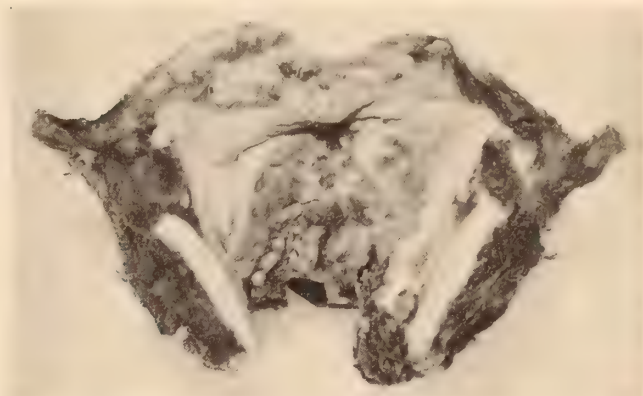


FIG. 1.—Photograph with illumination from above. The whole interior of the larynx is covered with the epithelioma, which can be seen to extend from the free edge on the right to within a short distance of the same on the left.

same being used to cleanse the wound. The temperature did not get above 100° at any time, and on the third day began to go down. On the 22d a pus cavity was found above the opening to the trachea, where one of the stitches had pulled out from the upper posterior border of the trachea. The cavity held a half-teaspoonful of pus and lay behind the integument flap in front of the œsophagus. This healed up in a few days. There



FIG. 2.—The same, illumination from below.

was no other trouble with the rest of the wound. The wound in the mouth, or rather pharynx, healed apparently by first intention. No trouble was found in swallowing small quantities slowly, and so on the 26th the patient was allowed to swallow all his nourishment, it, of course, being all fluid. Up to this time the œsophageal tube had been passed easily.

By April 1st the patient's wounds were all in such good

condition that he was put upon regular hospital diet. About this time it was noticed that the tracheal opening, instead of remaining round, was becoming slitlike, and it was decided to put a tube in to make it regain the right shape. Since that time the patient has had no especial trouble and has been of no inconvenience to his medical attendants, except in getting the right kind of a permanent tube. Some of these latter, for he has had several, gave him a peculiar pain when out of position or when he coughed. The pain would streak down to the neighborhood of the heart and then run down his arm, exactly like the pains of angina pectoris. I could produce them by pressing the tube downward against the sternum. Of course, patient was very quiet at first and did not disturb his nurses by talking too much, but later in his constant efforts at talking the merest trace of a whisper could be heard. This was in pronouncing *s*, *z*, and *ch* in German. Later the whisper became more evident on these same letters, and by watching lips the whispered consonants made his speech quite intelligible. Even now words are not clearly spoken, but at the present writing I am able to understand short sentences or single words very satisfactorily with my back turned and he several feet away. His German is better understood than his English, although he speaks the latter perfectly well. He can whistle, as he says, "ganz gut," and he craves to smoke, a thing which he can accomplish. By developing the power to whistle he will add to his ability to speak. Certainly he is making constant progress in this direction. In every other respect he is perfectly well and nothing seems wrong with the wound inside or out. Inside, the epiglottis joins on to the remnant of the arytenoids, which show as two small hillocks at the base of the former. There is no marked depression between.

I can see nothing in this case to discourage me in operating in the next in the same way, and the only thing which suggests itself by way of criticism of the procedure is that the next time I should advocate wearing the tracheal tube from the start. Expectoration would be easier, and then the wound would assume the right shape from the start. I think it is an advantage to have the trachea accustomed to breathing air directly into it before the main operation, as both it and the patient are used to the conditions beforehand and are less irritated during the critical period of healing.

For the accompanying photographs I am indebted to Professor M. C. White, who has skillfully reproduced for you the appearance of the larynx after splitting open subsequent to the removal.

A CASE OF PSORIASIS

AT THE AGE OF TWO YEARS AND FIVE MONTHS.

By C. M. RAMBO, M. D.,
ZANESVILLE, OHIO.

MASTER C. A. was brought to my office September 16, 1893, his mother giving the following history:

Born April 5, 1891; had always been a healthy child until about two months before consulting me she noticed while bathing him two or three red spots upon the anterior surface of the right knee, which in a short time became covered with white scales.

Later she observed patches of the same kind upon the left knee, elbows, and other parts of the body.

Upon examination I found no evidence of so-called strumous

diathesis, and after most careful investigation could obtain no evidence of hereditary syphilis. Teeth in every particular perfectly normal.

Upon examination of the cutaneous affection I found it existing in the following locations: Extensor surfaces of the lower extremities, more marked about the knees; extensor surfaces of the upper extremities, especially upon the elbows and forearms; over the scapular region, and two small patches behind the right ear.

The disease manifested itself upon the scalp more in the form of a diffuse scaliness.

The lesions consisted of dry, reddened, inflammatory patches covered with white imbricated scales, which, upon being detached, there were some minute points of exudation of blood.



There was some itching at the beginning of the disease, but at the time I saw him he complained of only slight itching at night, especially in the patches which had appeared recently. I made a diagnosis of psoriasis and regarded it as a very unusual case, since the disease appeared at such an early age, he being at the time I saw him two years and five months old.

About six weeks after I first saw him I succeeded in securing a photograph, which gives a fair idea of the extent and location of the affection.

It is proper to note that I treated a cousin of this child for the same disease. This patient was seven years of age when the disease first appeared.

I have also been informed that the grandmother of these

children had patches of skin disease of a similar character about the knees and elbows, which existed for many years before her death.

I report this case, since it is a rare occurrence to find so well marked a case at such an early age, and because I have been unable to find more than a few cases reported under the age of three years in all the literature that I have examined.

PAPILLARY HYPERTROPHY OF THE NASAL MUCOUS MEMBRANE COMPARED WITH A TRUE PAPILLOMA.*

BY JONATHAN WRIGHT, M. D.,
BROOKLYN.

THREE years ago, in a paper on Nasal Papillomata read before this association, I tried to show the error in nomenclature and the consequent confusion in nasal pathology introduced by some of our German *confrères*.

This has gone to such an extent in Germany that when they speak of nasal papillomata they have to stop to explain that they don't mean true papillomata, but Hopmann's papillomata.

Three years ago I presented the drawing of a section of a papillary hypertrophy, removed by Dr. Knight from the region of the middle turbinated bone, as an illustration of Hopmann's papilloma. Since then I have been in hopes of meeting with a true nasal papilloma, either in my own practice or in that of some of my friends. This hope has not been realized.

It has happened this spring that I removed from the middle of the inferior turbinated a mulberry growth which exactly corresponds to Hopmann's description as quoted in my paper referred to above. About the same time Dr. Newcomb gave me for examination a typical papilloma from near the edge of the soft palate, where they are so common.

Having examined these growths simultaneously, it occurred to me that it might be of interest to present draw-

ings to this society which would illustrate the total radical differences in the character of the two growths, disclaiming, however, any pretense of making any statements which are



FIG. 1, A ($\times 4$).—Fibroma papillare from the soft palate.



FIG. 1, B ($\times 4$).—Nasal papillary hypertrophy.

not generally accepted by histologists. That these differences have not been generally appreciated by rhinologists is my excuse for taking your time.

Fig. 1, A, represents the external appearance of a pedunculated growth which we would all recognize clinically as a papilloma. Virchow says it really should be called a fibroma papillare, and it is so labeled in some works on pathology. You will observe that it consists, roughly speaking, of a thick stem, at the end of which we have a number of irregular sprouts: some, simply conical in shape, spring directly from the central stem, but the larger

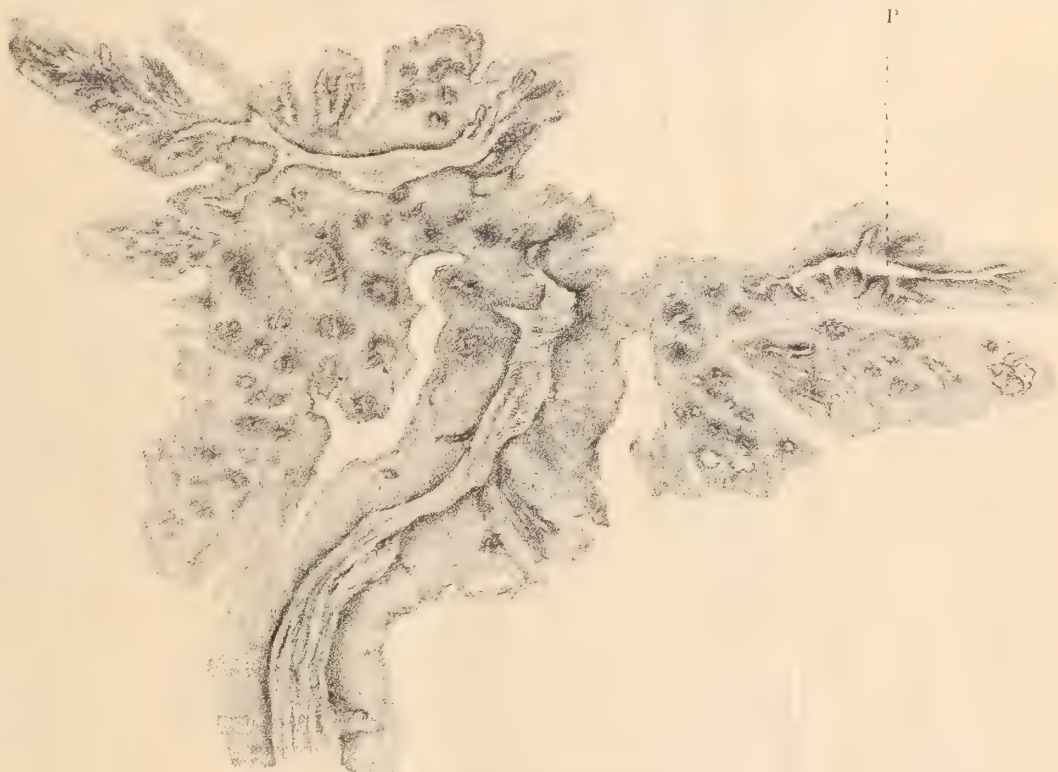


FIG. 2, A ($\times 10$).—Fibroma papillare.

number are again divided into stem and sprouts. At a glance it looks like a budding, tuberous vegetable.

Fig. 1, B—a drawing of the nasal growth—shows a symmetrically rounded mass divided by cross-lines into more or less regular portions. This we are familiar with under the name of a mulberry hypertrophy, which so frequently occurs at the posterior ends of the inferior turbi-

* Read before the American Laryngological Association at its sixteenth annual congress.

the circulation was in a higher degree and more immediately imperiled by the action of chloroform was held for a long time and with great obstinacy by the London and Edinburgh schools respectively, and finally led, under the influence of Surgeon-Major E. Lawrie, an enthusiastic pupil of Syme's, to the most extensive, thorough, and decisive investigations of the two celebrated Hyderabad commissions.

The labors of the second commission were partly directed and carefully watched by Dr. Lauder Brunton, delegate of the *Lancet*, who, in his excellent work, *Pharmacology and Therapeutics*, had very decidedly stated that one of the dangers resulting from chloroform was death by stoppage of the heart, but who afterward did not refuse to sign the report of the commission, some of the conclusions of which ran as follows: "1. Chloroform, when given continuously by any means which insures its *free dilution with air*, causes a gradual fall in the mean blood pressure, provided the animal's respiration is not impeded in any way, and it continues to breathe quietly without struggling or involuntary holding of the breath, as almost always happens when the chloroform is *insufficiently diluted*. As this fall continues, the animal first becomes insensible, then the respiration gradually ceases, and lastly the heart stops beating."

"35. The commission has no doubt whatever that, if the above rules be followed, chloroform may be given in any case requiring an operation with perfect ease and absolute safety, so as to do good without the risk of evil."

A very similar opinion is held by the majority of the surgeons in France, and expressed by Claude Bernard in his *Leçons sur les anesthésiques et sur l'asphyxie*, as follows: "Aussi un certain nombre de chirurgiens proposèrent-ils d'abandonner le chloroforme pour revenir à l'éther, dont l'usage paraissait moins à craindre. Aujourd'hui encore, les chirurgiens de Lyon emploient préférablement l'éther. On croyait le chloroforme plus dangereux que l'éther parce qu'il était plus actif; mais en réalité, la fréquence relative des accidents par le chloroforme tenait peut-être tout simplement à ce que c'était cet agent anesthétique qu'on employait dans l'immense majorité des cas. Plusieurs discussions ont été provoquées par les partisans de l'éther, surtout par les représentants de l'école de Lyon, et il a été constaté que l'éther, lui aussi, avait produit un certain nombre d'accidents mortels. Les deux agents anesthésiques usités peuvent donc, l'un comme l'autre, entraîner quelque risque de mort, et la chirurgie humaine a conservé presque partout le chloroforme, dont l'action est plus rapide et plus complète."

In Germany, too, the use of chloroform for surgical anesthesia is much more frequent than that of ether, and for this reason the carefully gathered statistical statements which E. Gurlt published in the *Archiv für klinische Chirurgie*, vol. xlii, 1891, and vol. xlv, 1893 (Zur Narcotisirungsstatistik), are not so conclusive as to decide the question which of the two anesthetics is generally preferable on account of its lesser perilousness.

This question has received an entirely different aspect in the course of recent years, when critically made clinical observations, thorough chemical and physical examinations of the urine, and pathologico-anatomical researches have

shown that the immediate dangers arising by paralysis of the heart or the respiration during the time of the administration of the anesthetics are by no means the only ones that have to be taken into account. Irritation of the bronchial tissues, and above all serious changes in the excretory glands, are the most prominent of the bad after-effects of a prolonged narcosis, and may lead to bronchopneumonia or to what formerly in many cases was considered to be a "septic condition." Professor William H. Porter, in his paper, *The Urine, its Density in Relation to Anesthetics* (*The Post-graduate*, July, 1893), shows that ether narcosis produces a much higher degree of suboxidation than chloroform, the products of which put a strain on the excretory functions of the kidneys, to which these organs, if not in a perfectly healthy condition, may in the course of one or several days finally succumb. "This delay in the fatal result takes the odium off the ether as compared with chloroform, while the ether still remains equally responsible, and probably causes as many if not more deaths than chloroform." In the discussion of Dr. Porter's paper several experienced surgeons expressed their unanimous consent to this view of the relative perilousness of the two anesthetics—a fact which seems to indicate that even in America chloroform is going to be released from injudicious condemnation as it was expressed in H. C. Wood's *Therapeutics* by the words: "These advantages (of chloroform) are, however, so outbalanced by the dangers which attend its use that its employment under ordinary circumstances is unjustifiable."

The question henceforward will apparently be, not whether chloroform or ether ought to be used exclusively as the less dangerous anesthetic under all circumstances, but in what cases it is safer to use chloroform, and in what ones ether would be preferable.

The experiments of the Hyderabad Commission have shown that, to produce an efficient anesthesia with ether, it is necessary to exclude the air as thoroughly as possible, and that under this condition ether narcosis is very similar to an asphyxia brought about by the inhalation of carbonic-acid gas; whereas chloroform narcosis, to be quiet and safe, requires a free and even dilution of the anesthetic vapor with air. This principal condition for a safe administration of chloroform is not fulfilled by the simple method of pouring the anesthetic on a cloth folded to form a funnel, or on a mask with flannel lining. For even the so-called drop method does not prevent very considerable fluctuations in the concentration of the inhaled vapors. To obviate this fault Dr. Junker constructed his well-known and much-used apparatus, in which by means of a double hand balloon a continuous stream of air is driven through a column of chloroform (or methylene) contained in a narrow bottle, and after its saturation with the narcotic vapors is caused to be inhaled by the patient by means of a mask which is well fitted to the face, covering both nose and mouth.

There are, however, two objections to this device: First, that the saturation of the inhaled air with chloroform vapor is in the main too strong; and, second, that a regulation of the intensity of the narcotic action can only be obtained by

increasing or decreasing the volume of pumped air—that is to say, by a more or less frequent compression of the balloon, and not, as would be more desirable, by a change in the saturation of an equal quantity of air. The different modifications of Junker's apparatus, which the well-known London instrument-makers, Krohne & Sesemann, brought before the profession, tended to eliminate these faults, but they only succeeded in circumventing them seemingly, for the air conduction through the chloroform was maintained, while the regulation was assigned to a stopcock in the afferent tube, which, of course, can only modify the volume of the introduced air and not the saturation of the air escaping from the chloroform bottle. The same holds true with the advised fractional compression of the bellows, while the somewhat artificial calculation as to what chances of further dilution the narcotic vapor may find in the mask can not make up for these shortcomings. The watching of the patient's respiration being, according to the decision of the Hyderabad Commission, of paramount importance, it was a good idea to furnish a chloroform inhaler with a contrivance which continually drew the attention of the administering physician to this process and facilitated its control. An old, experienced, and reliable anæsthetizer, who does not allow his attention to wander from his proper task, can easily and safely do without such a respiration indicator. But in most of our hospitals, as yet, the junior or senior clinical assistants—*i. e.*, young and inexperienced men—are intrusted with the narcosis, and their attention is naturally too often distracted by the interest they take in the procedures of the operation. In their behalf a respiration indicator is of great value, but it ought to appeal rather to the ever-disengaged ears of the administering physician, as well as of the operator, than to the eyes, for those of the latter are necessarily and those of the former may occasionally be occupied with the surgical manipulations.

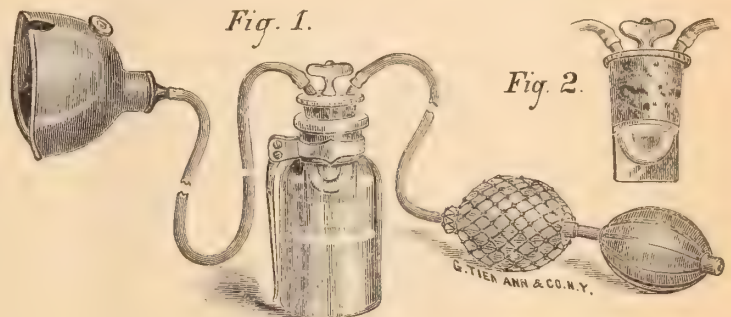
The writer is not the first to find fault with the Krohne & Sesemann apparatus, and very essential improvements on it have been devised before.

In the apparatus which Dr. Kappeler, of Münsterlingen, described in the *Verhandlungen der deutschen Gesellschaft für Chirurgie* (xix. Congress, 1891), the afferent tube, after passing the stopper of the chloroform bottle, is cut short, so that the stream of air does not pass through any quantity of chloroform, rising up in bubbles to escape through the efferent tube, but only strikes the surface of the chloroform column without agitating it to any extent. This has a double advantage: First, the air is from the beginning much less but more evenly saturated with chloroform vapors, and the concentration continually decreases as the surface of the chloroform is falling and the air-containing room over it increasing by the evaporation; second, the chloroform, not being agitated by the turbulent air-bubbles, only yields its most volatile parts to the stream of air, whereas the heavier and less volatile contaminations are left at the bottom of the bottle, and this is of great value so long as the Pictet chloroform, which is perfectly purified by crystallization at a very low temperature and high pres-

sure, is not generally applied. But there is one drawback even to this ingenious apparatus of Kappeler's—*viz.*, the difficulty of adapting the concentration of the narcotic vapor to the momentarily varying requirements of the narcosis. A constant decrease from the first respiration will not answer this purpose; on the contrary, it is in most cases advisable to begin with a very weak concentration, and to raise it slowly till anæsthesia and unconsciousness are produced, thus avoiding struggling, gasping, and coughing, which may seriously interfere with the respiration and aggravate the prospects of the narcosis. But even later on a continued and steady decrease of concentration is rarely indicated, especially in protracted operations, where some manipulations are more apt to arouse the patient than others.

To be able to adapt the concentration of the narcotic vapor exactly and easily to the special requirements which may arise during any phase of the operation, Messrs. Tiemann & Company have constructed under the author's direction an apparatus which has proved very serviceable, and seems to guarantee the greatest possible safety (Fig. 1).

The apparatus consists of a pair of rubber hand-bellows by which a continuous stream of air is produced and led through the afferent rubber tube to a piece of metal tubing, which passes through the stopper of the chloroform bottle and opens on a level with a smooth metal plate forming the



inferior surface of the stopper. In the same way the efferent tube is constructed. The openings of these tubes within the bottle can be connected or disconnected by means of a semicircularly bent metal tube inserted in a vertical metal plate (Fig. 2), that can be turned around a vertical axis by means of a shaft, which passes through the center of the stopper and is fitted with a crank at the top of it. This arrangement enables us either to make the entire stream of air pass over the surface of the chloroform, or to turn it off partly, or even entirely, through the curved tube into the efferent one without any admixture of chloroform vapor, this being a regulation in which not the amount of air that passes the tubes, but only the degree of saturation which it obtains within the bottle, is subject to change.

The efferent tube is connected with the soft-rubber mask which is molded to fit the face tightly, covering the mouth and nose. Besides the opening to which the efferent tube is connected there is another one, which gives entirely free passage to the expiratory air; an open and easily sounding whistle inserted in this opening makes every res-

piration audible, and draws the attention of the physician to any change in the respiratory process.

In recommending this apparatus to the profession, I hope that it may contribute to abolish the ill-founded prejudice which by many is still fostered against chloroform narcosis, and to spare many patients the by far greater unpleasantness of ether narcosis in cases where chloroform can be given with the same or even greater safety.

79 EAST FIFTY-SIXTH STREET.

A REPORT OF TWO CASES OF PERFORATING ULCER OF THE FOOT, WITH NOTES AND BIBLIOGRAPHY.*

By SMITH ELY JELLIFFE, M. D.,

ASSISTANT PATHOLOGIST TO THE METHODIST EPISCOPAL HOSPITAL, BROOKLYN.

THROUGH the courtesy of Dr. George R. Fowler, of this city, I am enabled to present two cases of a condition that is of some scientific interest, not perhaps altogether on account of its rarity, but because of its polymorphism, and the necessity that exists for further analysis in this class of cases from a pathological standpoint.

I refer to the condition known as perforating ulcer of the foot, the *mal perforant* of the French. It has been claimed and is still maintained by many observers that *malum perforans pedis* is not a disease of itself, but should be classed among those diseases of the bones that result in necrosis, death, and gradual exfoliation of some of the parts, which affection is due to a multiplicity of causes.

I have first to present to you the following histories:

CASE I.—John B., German; boatman; married; was admitted November 1, 1893, Dr. Fowler's service, into the Methodist Episcopal Hospital.

The patient was found by the ambulance surgeon with a history of having had one or more chills. Upon arrival he was suffering from a chill, the pulse about 120, respirations above 30, also a high fever. Admitted into the hospital, and on examination there was found an ulcer of the right foot, with the leg swollen and œdematous and tender as far as the knee. Inguinal glands enlarged; temperature, 103° in axilla; pulse, 112; respiration, 30. The leg and foot were cleansed and the wound irrigated and bichloride compresses applied. The following morning the temperature was normal. The examination of the leg shows a partial anæsthesia of the diseased foot up to the ankle; the right foot and leg from the ankle up present somewhat delayed sensation only.

November 11th.—Patient had a slight chill.

12th.—Dressed by house surgeon.

Physical examination shows both upper lobes of lung in front and behind are somewhat dull upon percussion, and harsh breathing of a tubular character and prolonged expiration are noted. Voice increased; heart is negative.

15th.—Ordered to prepare for operation.

18th.—Operation. Patient sustained no shock, took the anæsthetic well, and made a good recovery. Sinus was cleared and amputation of the great toe was performed.

20th.—Dressed by Dr. Spence; packing removed; wound irrigated and repacked with iodoform-gauze compress.

23d.—Redressed.

24th.—Redressed. Balsam-of-Peru gauze; wound clean and granulating. Shooting pains in the limbs after operation. Mental condition depressed.

28th.—Redressed. Sharp shooting pains in the limbs still complained of.

December 5th.—Wound broken open; bone covered, with the exception of a sinus running down from the upper part of the wound. Granulations flabby.

7th.—Redressed; no improvement.

10th.—Patient complains of shooting pains in his legs from the knee down, and recurring every six or twenty-four hours.

11th.—Wound looks better.

13th.—Pains pronounced.

14th.—Pains pronounced.

15th.—Dressed. Wound closing.

16th.—Dr. Fowler examined.

18th.—Wound dressed.

30th.—Patient doing well; wound not yet healed.

January 3, 1894.—Patient complains of shooting pains in the left leg and thigh.

9th.—Small area unhealed.

19th.—Nearly healed.

30th.—Entirely healed.

31st.—Patient still complains of sharp pains in the legs occasionally.

No further history was available, and as I was not able to make a more extended examination of the patient it would be impossible to ascribe any cause for his perforating ulcer.

CASE II.—Otto S., a German, aged sixty years, single, living in this city. The patient's ancestral history shows a healthy grandmother and grandfather. His father died at the age of eighty-three; was troubled with acute articular rheumatism, and had some trouble with his feet of an unknown nature. His uncles and aunts on his father's side were all healthy. His mother died at the age of forty-seven of phthisis. Her brothers and sisters, as far as known, were all healthy. Of a large family of brothers and sisters, twelve in number, two of the five brothers were dead, one dying at the age of thirty of phthisis, the other from an unknown cause. Seven sisters, one dying at the age of twenty-five, of phthisis. One sister alone has had any trouble with her feet.

The patient has always been a healthy man, suffering from none of the diseases of childhood. At the age of twenty-five he had an attack of acute articular rheumatism involving most of the joints, those of the feet being especially troubled. Ten years ago, twenty-five years after his first attack, he had a second attack of rheumatism, involving most of the joints. The right foot was involved to a considerable extent, and he dates his troubles from about this time. Specific history is denied, and no evidences of the same are to be found. The patient has been somewhat of a drinking man, and has been a traveler, being upon his feet quite extensively.

After the acute rheumatic attack ten years ago, the patient noticed slight swellings of the right foot, with pain, which he called gout. This condition would persist for a few weeks and then gradually subside; the attacks would occur perhaps every four or five months and were ascribed to gout; at the time of these attacks pain was excessive, of a sharp, penetrating character, and prevented rest and sleep.

About five years ago the patient noticed that the feeling in the right foot was slightly impaired, but it was not marked, being at first observed in the toes and gradually creeping upward. Three months ago the patient had a double pneumonia, and at

* Read before the Brooklyn Pathological Society, June, 1894.

this time the foot became appreciably worse; it was swollen and excessively painful.

At the time of admittance the patient had an ulcer, with raised edges, on the plantar surface of the right foot, just beneath the metatarso-phalangeal articulations, the opening leading into a sinus an inch in depth, and discharging a thin, sero-purulent matter.

On the 11th of July the patient was operated on, an amputation at the junction of the middle and lower thirds of the leg being done. Soon after the operation the flaps became unhealthy and later gangrenous, and, after removal, healing gradually took place.

On the 29th of July healing was going on, and on the 19th of August the patient was discharged, with a small, granulating surface still present.

Physical Examination (August 5th).—Notwithstanding the patient having been a month in bed, the body is fairly well nourished. There is some wasting of the limbs, the hair is gray, and there is beginning arcus senilis; patient's hearing and eyesight are good, and the mental faculties are normal. He has no pains, and has had none other than described. No symptoms referable to the central nerve system; no girdle sensations or prickling sensations in hands or feet; the tendon reflexes are normal; no ankle clonus; no Argyll-Robertson pupil; and he has had no ataxia of arms or legs. Examination of the right limb above the site of the amputation reveals nothing markedly abnormal; the left leg shows no extra wasting; cutaneous sensibility is plainly diminished to the middle third of both legs, front and back; the pressure sense is present and is apparently not modified; points less than three inches (seven centimetres) apart can not with certainty be identified; temperature sense diminished; cold is more readily appreciated, and is said to cause pain; at times the patient was unable to distinguish between heat and cold; urine negative, no sugar.

Dissection ten hours after amputation. The whole foot is swollen and œdematous; just beneath the second tarso-phalangeal articulation is a small, irregular opening, with inverted edges, and discharging a thin, sero-purulent matter. Dissection into the sinus reveals at its bottom a more or less extensive pocket, in which were found two pieces of bone consisting of a portion of the shaft with its articular surfaces; the articular ends of the second, third, and fourth metatarso-phalangeal articulations were blackened and eroded and so modified that there remained no articular surfaces, the two portions found in the sinus being apparently the distal end of the second metatarsal and the proximal end of the first or second phalanx.

The tissues of the foot were œdematous and thickened throughout; the nerves seemed swollen; the large toe and the little toe seemed intact. Portions of the œdematous tissue about the ulcer and several portions of the nerve were preserved in Müller's fluid for microscopical study. Portions of the internal and external plantar nerves, the anterior tibial and posterior tibial nerves, with surrounding tissues and vessels, were hardened in Müller's fluid about ten days or two weeks, and the hardening completed in absolute alcohol. The portions were imbedded in celloidin, and the sections were stained by various methods—Weigert's, Pal's, with nigrosin, eosin, hæmatoxylin; Van Gieson's picro-acid fuchsine method, and others.

For the sake of a systematic review of the lesions found, I will first consider those found in the anterior tibial nerve. The muscular and connective tissues surrounding the nerve and blood-vessels presented no anomalous conditions; the structures of the blood-vessels were greatly altered; in the arteries the intima was thickened by new connective tissue; there was

marked proliferation of the connective tissue beneath the endothelium, which seemed to be intact; the media and adventitia were unaltered, save in a few places where slight degeneration of some of the muscle fibers of the media was noticed; the lesion was one of beginning obliterating endarteritis; the veins were similarly modified; the intima was thickened, but to a less extent than in the arteries; the media was also increased in size. The nerve bundle was strongly outlined by an increase of connective tissue in the epineurium, and the nerve fascicles were made more prominent by a corresponding increase in the perineurium, but there did not seem to be much increase in the connective tissues of the endoneurium. The blood-vessels of the fascicles of the nerve bundle were slightly modified, showing the same lesions as were found in the outside vessels to a minor degree.

The axis cylinder of the nerve fibers was degenerated, there being found no axis cylinders, with one or two exceptions, in the whole section; the myeline sheaths were degenerated in places, but generally were apparently collapsed and irregular in shape and definition; here and there portions were stained by the picro-acid of the picro-acid fuchsine mixture, showing points of degeneration. At places the endoneurium was increased in amount to fill up the space made by the collapse of the myeline sheaths and the loss of the normal axis cylinders. With but a few minor exceptions the study of the posterior tibial nerve and the internal and external plantar nerves showed practically the same lesions; in both the internal and external plantar nerves and the posterior tibial nerves, portions were regenerated; axis cylinders seemed to be present. With these exceptions the description of the anterior tibial will serve for the other nerve study.

The tissues of the foot showed a condition which was of some interest, especially when taken in conjunction with what we know of experimental perforating ulcer of the foot. The stratum corneum was found greatly thickened, also the stratum lucidum; the rete Malpighii entered deeply into the tissues of the foot, the intervening papillæ being elongated and somewhat tortuous. The connective tissue was loosely packed, the fascicles being somewhat isolated and having between them quantities of leucocytes; the muscular tissues also showed a looseness of arrangement, and the minute nerves seemed to be degenerated.

In 1852 Nélaton described a peculiar condition of the bones of the foot to which Vesigné gave the name of *mal plantaire perforant*.

Since that time to the present numerous cases have been reported with more or less exactness and with varying accuracy. The writer has been enabled to find bibliographical records of some two hundred and twenty contributions to the subject since the original description by Nélaton. (Bibliography appended.)

The theories that have been advanced as to the causation of the disease have been, as one might suppose, quite numerous. They are summed up in Ziegler's *Pathology* as: 1. The theory of mechanical pressure. 2. That of atheroma of the blood-vessels. 3. That of nervous disturbance. Duplay and Morat in 1873, and Bruns in 1875 considered these various theories by the light that was then shed upon the subject; Savory and Butlin in 1878 again took up the question and considered the various theories; and lastly, Pitres and Vaillard, in 1886, resumed the discussion. If any of these articles are consulted it can be readily seen that there exists still some doubt upon the subject of per-

forating ulcer of the foot, and whether the difficulty is on account of the classification of all necrotic diseases of the foot as perforating ulcer, or whether there exist a number of causes for the same lesion is still a question open for the pathologists. In recent years, since the theory of the nervous disturbance was advanced by Duplay and Morat, investigations have been mainly confined along this line, and in general with quite confirmatory results, so that Pitres and Vaillard declare that in no cases of perforating ulcer can the nerves be healthy, and that it is the cause *per se* of the disease, being by far the most emphatic statement as to the ætiology of the affection.

Since the description by Duplay and Morat (1873) of the nervous origin of this affection many facts have been brought to light and have been more fully understood. Many cases of perforating ulcers have been reported following (a) spinal-cord complications, as in fractures of the laminæ, by Dolbeau, Soulages, Ollier, and Bruns; (b) diseases of the spinal cord, by Duplay and Soulages; (c) spina bifida, by Bernard and Lucain. Many cases following progressive muscular atrophy have been reported, also cases have been published following progressive spinal sclerosis, especially by English authors; lesions of the sciatic nerve, fractures of the femur, gunshot wounds, etc., have all contributed their quota of cases. Its analogies to leprosy have already been pointed out by Virchow, and Estlander goes so far as to class all forms of perforating ulcer as forms of *ulcus leprosum*.

Cases of perforating ulcer due to nervous troubles entirely have been reported by Richet, Adelman, Stender, Duplay and Morat, Sedillot, and others; and a more extended research through the bibliography emphasizes the protean aspects under which this affection has found a place.

The clinical evidence is of such a character as to warrant the conclusion that the type of perforating ulcer of the foot belongs to a distinctly trophic disturbance. Experimental evidence also gives a number of facts leading to the same conclusion.

Schroeder Van der Kolk was one of the first to perform experimental resections of the sciatic nerve in rabbits, with the result of producing grave changes in the skin and bones of the foot. Brown-Séquard in 1849, in repeating the experiments, was of the opinion that the disturbance in the skin was due to the dragging of the swollen member upon the ground and subsequent irritation. Hauser (1858) held that paralysis of the nerve was not sufficient to trouble the nutrition of the tissues and that the changes were due to hyperæmia. Virchow was of the same opinion and favored the theory of decubitus. Mantegazza (1867) taught that there was a tendency to a development of simple connective tissue in the parts cut off from the nerve supply, thus rendering them less healthy under excitation. Morpugo (1890), in experimenting upon the sympathetic of the neck, found in the ears of rabbits a great activity in the cellular regeneration, and was led to perform a number of experiments upon the sciatic nerves of rabbits, which experiments were made under the strictest antiseptic precautions and in which all elements that could tend to

irritate the paralyzed limbs would be controlled. In his latest contribution to the subject, Morpugo (1892) found that after the section of a portion of the sciatic nerve of a rabbit two centimetres in length, just below its bifurcation, the day following the operation the leg operated upon became enlarged and of a doughy consistence, and the temperature increased ten to twelve degrees. Between the fifteenth and the twentieth days the temperature was reduced and the limbs became nearly equal in size, the enlargement had disappeared, and the foot was almost normal. About the same time there was noticed in the plantar regions a slightly reddened and congested circumscribed portion corresponding to the articulation of the foot with the tarsus, and in this region, notwithstanding the precautions taken, lesions rapidly developed which could not be ascribed to those due to decubitus. The skin became redder and warmer, the hair fell out and the skin desquamated, and at the center cutaneous hæmorrhages formed; after several days the dried skin detached itself and there was found an ulcer about two centimetres in diameter. This ulcer had no tendency to heal, notwithstanding good surgical procedures, becoming deeper without increasing its superficial area, until finally disease and necrosis of the bone ensued. The microscopical findings are of interest to compare with the findings of the microscopical examination that are reported above. The examinations were made upon numerous animals two, six, fourteen, and thirty-nine days after resection of the sciatic nerve; they were made upon the skin of the plantar and dorsal regions; upon the tendons, muscles, and the peri-articular tissues and the bones of the foot. Fixation in Flemming's solution; methods of staining by safranin, picric acid, borax-carmin, and hæmatoxylin were employed. At the end of six days the plantar skin became thicker and succulent and had the appearance of œdematous skin; there were no noticeable changes in the epidermal layer. Mitoses were rare and were found more often in the hair follicles. The connective tissues and the dermis were less compact, the different fascicles appearing isolated and often separated by an amorphous substance. The ramifications of the nerves in the skin were evidently degenerated, the myelin sheaths being fragmentary and reduced to irregular drops in form; between the interrupted portions of the myelin sheaths evidences of cellular activity were soon seen by an increase in the mitoses.

It can thus be seen that a series of changes take place under experimentation that both macroscopically and microscopically agree with the picture presented in perforating ulcer of the foot, and this when taken in accord with the clinical evidence adduced in lesions of the sciatic and neighboring structures leads one to the conclusion that fundamentally there is some trophic disturbance at work that gives the results. In the more gross lesions the cause is evident, but in the cases which seem to develop of themselves, what the initial impulse is that leads to degeneration of the nerve fibers, both motor and trophic, still requires investigation. The investigations of Duplay and Morat, Savory and Butlin, Pitres and Vaillard, who severally and collectively claim a nervous lesion as the cause, seems to the writer, from the investigations made upon

this one case of amputation, to be the hypothesis which more nearly accords with the findings.

August 15, 1894.

Bibliography.

- Adelmann. Ueber das Ulcus plantæ pedis perforans. *St. Petersburg. Med. Zeits.*, 1868, xv, 326.
- Adelmann. Das Plantargeschwür, Ulcus perforans pedis. *Vrtlsschr. f. a. prakt. Heilk.*, Prag, 1869, c, 87-113.
- Alcayde, A. Ulcera estensa gangrenosa del pie. *Siglo. Med.*, Madrid, 1874, xxi, 479.
- Alling. Mal perforant du gros orteil droit; récédive; amputation. *Bull. de la Soc. anat. de Paris*, 1871, xli, 160.
- Appia, L. Du mal perforant du pied et d'une forme analogue de plaie de ce membre. *Echo méd.*, Neuchât., 1860, iv, 569, 583; repr.
- Ashhurst, J., Jr. Great Toe and a Portion of its Metatarsal Bone removed for Intractable Ulceration. *Phil. Med. Times*, 1887, 2, ii, 192.
- Atkin, C. Abstract of a paper on Deformity of the Feet due to Perforating Ulcers. *Brit. Med. Journal*, Lond., 1886, ii, 1455.
- Atkin, C. Perforating Ulcer of the Foot. *Brit. Med. Journal*, 1886, 595.
- Badaloni, G. Il mal perforante. *Bull. d. sc. med.*, Bologna, 1881, 6 s., viii, 5-28, 1 pl. et repr.
- Ball, B., and Thiebierge, G. On Perforating Ulcer of the Foot as connected with Progressive Locomotor Ataxy. *Tr. of the Int. Med. Congress*, Seventh Session, London, 1881, ii, 52-55.
- Barde, A. Leçon sur le mal perforant du pied. *Jour. de méd., de ch. et de phar. de Toulouse*, 1856, 3, p. 1, 196, 201.
- Bardenheuer, B. Mal perforant du pied. *Jahr. 6, u d. chir. Thatigk. in Colin St. Binger Hosp.* (1873), 1876, 322, 324.
- Barlow. Case of Perforating Ulcer of the Foot associated with Locomotor Ataxy. *Glasgow Med. Jour.*, 1886, 4, p. xxv, 57-63.
- Barnes, W. P. Perforating Ulcer. British Guiana. *Med. Ann.*, Demerara, 1892, 179.
- Bernard, A. *Du mal perforant*, Paris, 1874.
- Bertrand, N. Mal perforant des deux pieds et des mains. *Rec. de mém. de méd.*, Paris, 1865, 3 p., xiii, 460, 476.
- Biggs. *Lancet*, vol. ii, p. 735, 1876.
- Bird, F. Glückliche Behandlung veralteter Fussgeschwüre. *J. a. Chir. m. Augent.*, Berlin, 1829, xiii, 468, 475.
- Blanchard. Mal perforant plantaire et neurite ascendante déterminant les maladies spinales. *Paris méd.*, 1884, ix, 205-208.
- Boeckel, E. Fier. Hygroma proligère développé sous la tête du troisième metatarsien, extirpation, guérison, relation de cet hygroma avec l'ulcère perforant du pied. *Proc. verb. de la Soc. de méd. de Stras.*, 1866-68, iv, 108-111.
- Bonvecchiata, G. *Del mal perforante*, Venezia, 1886.
- Bonvecchiato, G. Intorno ad un caso di mal perforante in un neonato. *Raccogliatore med.*, Farli, 1886, 5 p., ii, 152-155.
- Bothezat, P. Quelques considérations sur la pathogénie du mal perforant. *N. Montpellier. med. Suppl.*, 1892, i, 455-464.
- Bouilly et Mathieu. Sarcome du sciatique, résection du nerf, mal perforant. *Arch. gén. de méd.*, Paris, 1880, cxlv, 641-659.
- Boursier et La Grange. Contribution à l'étude clinique du mal perforant plantaire. *Cong. franç. de chir., Proc. verb.*, 1885, Paris, 1886, i, 335-346.
- Boyer. *Maladies chirurgicales*, 5th edit., t. iv, p. 77, 1847.
- Boyland, G. H. Notes on Mal Perforant du Pied. *Med. and Surg. Repts.*, May 22, 1875, pp. 407, 408.
- Brigham, C. B. Perforating Ulcer of the Foot; Resection of the First Phalangeal Bones of all the Toes, together with the Heads of the Metatarsal Bones; Temporary Relief. In his *Surgical Cases*, 8vo, Cambridge, 1876, 102-106.
- Broca. *Gaz. des hôp.*, 1855, No. 117.
- Browne, O. A Case of Locomotor Ataxy associated with Perforating Ulcer of the Foot. *St. Barth. Hosp. Rept.*, London, 1882, xviii, 301-303.
- Bruns, P. Ueber das mal perforant du pied. *Berl. klin. Wochenschr.*, 1875, xii, 417, 430, 441.
- Buchmann, O. Behandlung hartnäckiger Fussgeschwüre. *Zeitschr. für klin. Ch.*, Berlin, 1879, xxiv, 273-302, pl. 1.
- Butlin, H. T., and Halden. Two Cases of Perforating Ulcer of the Foot. *Med. Press and Circ.*, London, 1883, xxxvi, 6.
- Butruille, H. *Le mal perforant*, Paris, 1878.
- Carter, H. V. Shortening of the Foot from Bone Diseases, Perforating Ulcer. *Lancet*, London, 1877.
- Case. Ulcus perforans. T. Fodsaalen. *Hosp. Tid.*, Kjobent, 1866, ix, 61.
- Chance, T. M. The So-called Perforating Ulcer of the Foot. Spontaneous Podalic Gangrene limited to a Small Area. *Cinn. Lancet and Clinic*, 1884, n. s. vii, 237-241.
- Chassaignac. *Moniteur des hôp.*, p. 380, 1856.
- Clement, J. B. A. *Considérations sur le mal perforant chez les diabétiques*, Paris, 1881.
- Conti, P. Un caso di ulcera neuro-paralitica (mal perforante) del piede. *Ann. univ. di med. e chir.*, Milano, 1879, ccxlix, 177-204, 1 pl.
- Czerny. *Beiträge and Op. Chir.*, 165, 1878.
- Dejerine. Deux cas de mal perforant. *Gaz. des hôp.*, Paris, 1891, lxiv, 650.
- Delmas. Deux observations de mal perforant de la plante du pied. *Union méd. de la Gironde*, Bordeaux, 1856, t. 105; *Moniteur des hôp.*, 1856, p. 568.
- Delsol, A. *Mal perforant du pied*. Paris Thèse, 1864; Schmidt's *Jahrbuch.*, Bd. 126, p. 142.
- Demarquay. *L'Union méd.*, H. S. 1861, t. x, p. 105; *Union méd.*, 1859, p. 543.
- Despres. Mal perforant de la main; mal perforant du pied chez une femme. *Gaz. des hôp.*, Paris, 1880, liii, 1019.
- Dieu. Forme particulière de mal perforant du pied. *Bull. Soc. anat. et chir. de Paris*, 1865, xi, 262.
- Dieulafoy. *Gaz. des hôp.*, 1858, p. 102.
- Dieulafoy. *L'Union méd.*, p. 399, 1856.
- Discussion sur le mal perforant. *Alger. méd.*, 1874, ii, 88.
- Dolbeau. *Leçons de clinique chirurgicales*, Paris, p. 414, 1867.
- Dor, P. *Le mal perforant*, Paris, 1879.
- Duckworth, D. Perforating Ulcers of the Feet in a Case of Locomotor Ataxia (Tabes Spinalis). *Tr. of the Clin. Soc.*, Lond., 1884, xvii, 231.
- Duplay et Morat. Recherches sur la nature et la pathogénie du mal perforant plantaire. *Arch. génér. de médecine*, 1873, t. i, p. 257.
- Duplay, S. Mal perforant du pied. *J. de méd. et chir. prat.*, Paris, 1875, xli, 13-17.
- Duplay, D. Le mal perforant. *Union méd.*, Paris, 1890, 3, pl., 37, 42; *Arch. gén. de méd.*, 6me série, p. 346, 1876.
- Englisch, J. (Abst.) *Wien. med. Press*, 1879, xx, 277, 279.
- Englisch, J. *Mitth. d. Wien. med. Doc.-Coll.*, 1879, v, 45-51, abs.
- Englisch, J. Ueber das bösartige Geschwüre der Fusssole. *Med. Jahrb.*, Wien, 1879, 81-128.
- Englisch, J. Ueber das mal perforant du pied. *Wien. Med. Bl.*, 1879, ii, 182, 185.
- Englisch, J. Perforirendes Fussgeschwür. Amputation des Mittelfuss Knochens der grossen Zehe; Scorbut, Heilung. *Ber. d. k. k. Krankenanst. Rudolph Stiftung in Wien*, 1878, 1879, 430.

- Englisch, J. *Med. Chir. Centralblatt*, Wien, 1880, xv, 302, 314, 326, 337, 351, 363, 374, 387, 598, 459, 471, 483.
- Estlander, J. A. *Deutsche Klinik*, sec. 154, 1871.
- Estlander, J. A. Om le mal perforant du pied. Four Cases. *Nord. Med. Ark.*, Stockholm, 1870, ii, No. 5, 1-11.
- Eve, F. S. Three Cases of Perforating Ulcers of the Foot. *Tr. of the Path. Soc. of London*, 1881-'82, xxxiii, 283.
- Fauchon-Courty, Charles. *Contribution à l'étude du mal perforant*, Paris, 1885, p. 100; the same, Paris, 1885.
- Faure, Joseph. *Contribution à l'étude du mal perforant* (Étiologie multiple), Bordeaux, 1886, 71, p. 40, No. 77.
- Ferrer, J. Amputación del dedo gordo del pie con motivo de una ulcera de caracter canceroso; curación completa á los 24 dias. *Bol. de med. conig. y form.*, Madrid, 1845, 2 p., vi, 194.
- Fischer, H. *Das chronische Fussgeschwür als Causalmoment der Amyloiden Nephritis*, Berlin, 1866.
- Fischer, H. *Langenbeck's Archiv*, 1873.
- Fischer, H. Das mal perforant du pied. *Arch. für klin. Chir.*, Berlin, 1875, xviii, 301-335.
- Fischer, H. Das mal perforant du pied. *Chir. Klin. zu Bresl.*, Berlin, 1875, 1-35.
- Follin. *Pathologie externe, traité élémentaire*, t. ii, p. 47, 1865.
- Fuchsbeiger, M. M. V. F. *De ulcere pedum psorico*, Tübingæ (1827).
- Gascuel, V. *Contribution à l'étude du mal perforant*, Paris, 1890, 88, p. 320.
- Gaut, F. Perforating Ulcer of the Foot; Amputation of the Leg. *Med. Press and Circ.*, London, 1890, n. s. L. 158.
- Gautier, L. *Du mal perforant*, Paris, 1870.
- Gillette. *L'Union méd.*, 1872, xvi, p. 287.
- Girerd, L. Du traitement des ulcères neuropathique par l'hyosciamine. *N. jour. med.*, Paris, 1884, ii, 57.
- Girard, M. Mal perforant. *Bordeaux méd.*, 1872, i, 268.
- Glynn. Exhibition of a Man with Partial Paralysis of the Legs and a Perforating Ulcer of One Foot. *Liverpool Med.-chir. Jour.*, 1882, ii, 149.
- Gorzu. *Sur les diverses affections du pied*. Thèse de Paris, 1857.
- Gosselin. Dermosynovite ulcéreuse au niveau d'un durillon plantaire, dite mal plantaire perforant, remarques sur la marche et l'étiologie de la maladie, à propos d'un malade atteint de cette affection. *Gaz. des hôp.*, Paris, 1867, xl, 369, No. 93.
- Gottel. Ueber die Anwendung der Chlorkalkes gegen chronische Fussgeschaden. *J. d. Chir. u. Augenhkld.*, Berlin, 1839, xxviii, 470, 472.
- Guyon. Mal perforant du pied sans lésions des artères; infection purulente; autopsie. *Gaz. des hôp.*, Par., 1869, xli, 413.
- Hancock, H. Remarks on Perforating Ulcer of the Foot. *Brit. Med. Jour.*, Lond., 1869, 1, 585, 587.
- Hancock. *On the Operative Surgery of the Foot and Ankle*, p. 57, 1873.
- Handford, H. Perforating Ulcers of the Feet of at least Ten Years' Duration, preceding other Symptoms of Tabes Dorsualis, associated with Charcot's Joint Lesion and (?) with Perforating Ulcer of the Tongue. *Am. Jour. of the Med. Sci.*, Phila., 1888, n. s. xvi, 257, 261.
- Harrot, V. Deux observations de mal perforant avec ataxie locomotrice. *Arch. de phys. norm. et path.*, Paris, 1881, 2 p., viii, 157-159.
- Heath, F. A Case of Perforating Ulcers of Both Feet. *Lancet*, London, 1883, 1, 452.
- Heidenhain, L. Ueber die Behandlung von chronische Fussgeschwüre und Eczemen mit dem Unnâschen Zinkleimverband. *Berl. klin. Wochenschr.*, 1892, xxix, 323, 325.
- Helbing, P. Ueber perforirende Hautgeschwüre in Folge von Neuritis. *Beit. z. klin. Chir.*, Tubing., 1889-'90, v, 468-481.
- Henno. Ulcère perforante de la joue. *Arch. méd. belges*, Brux., 1883, 3 s., xxiv, 218, 220.
- Hicquet. Mal perforant du pied. *An. de la Soc. méd. chir. de Liège*, 1876, xv, 413.
- Isambard, A. Mal perforant du pied. *France méd.*, Paris, 1871, xviii, 318.
- Jeannel, M. Diabète et mal perforant. *Rev. de chir.*, Paris, 1886, vi, 31, 43.
- Joly, J. *Du mal perforant et son traitement par la compression élastique*, Paris, 1872.
- Jouon. Ulcération de la face dorsal du pied. *Bull. de la Soc. anat. de Nantes*, 1880, Paris, 1881, iv, 46.
- Kerr, J. G. Ulcer of the Foot. *Jour. of the Med. Miss. Soc. in China*, 1862, Hong Kong, 1863, 12.
- Kleffmann, Louis A. *Ueber das mal perforant du pied*, Bonn, 1888.
- Klose, C. W. Fussgeschwüre und ihre Behandlung. *Zeitsch. f. klin. Med.*, Breslau, 1850, 1, 81-105.
- Körte, W. Zwei Fälle von Malum perforans pedis. *Arch. für klin. Chir.*, Berlin, 1880, xxv, 4891.
- Kotsonopulos, E. *Atheis*, 1873.
- Krebel, R. Behandlung der atonischen Fussgeschwüre. *Med.-Ztg. Russlands*, St. Petersburg, 1851, viii, 371, 379, 387, 395.
- Krönlein, R. W. Mal perforant du pied und verwandte Zustände. *Arch. für klin. Chir.*, Berl., 1877, xxi, 321-323.
- Küster, E. *Malum perforans pedis*. Chirurgie, 1876-1878, 8vo, Kassel u. Berlin, 1882, 272.
- Lagrange. De l'étiologie multiple du mal perforant plantaire. *Semaine méd.*, Paris, 1886, vi, 485, 487.
- Langenbeck, B. Ulcus prominens digitorum pedis, Resection der ersten Phalanx. *Deutsche Klinik*, Berlin, 1851, ii, 439.
- Lannelongue. Mal perforant. *Lef. de clin. chir.*, 8vo, Paris, 1888, 203, 218.
- Larrey, N. Rapport sur une observation de mal perforant des deux pieds. *Union méd.*, Paris, 1859, 20 t., 500-504, repr.
- Lasalle, C. Un cas de mal perforant plantaire. *Montpellier méd.*, 1890, 2 p., xv, 108-114.
- Lavallée. Mal perforant aux deux pieds. Amputation de pied par méthode de Chopart. *Bull. Soc. de chir. de Par.*, 1860-1861, 2 p., t. and 72.
- Leicht, G. *Ulcus perforans plantæ*, München, 1892, M. Ernst.
- Lenoir. *La Presse médicale*, 1837, t. i, p. 49.
- Leplat, E. C. *Sur le mal perforant du pied*, Paris, 1855; abs. in *Bull. gén. de thérap.*, Paris, 1855, xlix, 203, 256.
- Lewis, B. Recurrent Perforating Ulcer of the Foot; Recovery. *Weekly Med. Rev.*, St. Louis, 1887, xv, 258.
- Lisnard, J. *Du mal perforant*, Paris, 1870.
- Lorenzo, G. Le ulcerazione a calcagni e malleoli dei neonati e dei bambini lattanti. *Arch. ital. de pediat.*, Napoli, 1893, xi, 17, 24.
- Lucain, C. N. Du mal perforant plantaire, Montpellier, 1868; Thèse de Montpellier, *Constatt's Jahresbericht*.
- Maar, L. Mal perforant du pied. *Hosp. Tid.*, Kjobent, 1880, 2r., vii, 11-81.
- Malgaigne. *Anatomie chirurgicale*, 1859, t. ii.
- Marquez. Étude sur l'ulcère perforant du pied. *Gaz. méd. de Strasb.*, 1866, xxvi, 148-151.
- Masbrenier. *Gaz. des hôp.*, 1869, p. 10.
- Massaloux, L. M. *Du mal perforant*, Paris, 1868.
- Mathieu, J. A. A. *Du mal perforant*, Montpellier, 1878.
- Maurel, E. *Étude sur l'anatomie et la physiologie patho-*

logiques de l'affection connue sous le nom de mal plantaire perforant, Paris, 1871.

Mazzoni, C. Ulcera perforante del piede; escissione; cauterizzazione; guarigione. *Clin. chir.*, Mazzoni, Roma, 1876, iii, 67, 69.

Mazzoni, C. Ulcera neuro-paralitica alla faccia plantare dell'alluce del piede destro; esterpazione e cauterizzazione; guarigione. *Clin. chir.* (Mazzoni), Roma, 1881, vi-vii, 161.

Meuder, E. L. *De pedom ulceribus*, Wittenbergæ, 1802.

Michaud. Note sur l'état des nerfs dans l'ulcère perforant du pied. *Lyon méd.*, 1876, t. xxi.

Mirapeix. *Du mal perforant*, Montpel., 1883, 50, p. 40, No. 35.

Mitchell, Morehouse, and Keen. *Gunshot Wounds and Other Injuries of Nerves*, Philadelphia, 1864, p. 83.

Mondan. Ulcérations singulières des pieds ressemblants au mal perforant. *Mém. et compt. rend. de la Soc. méd. de Lyon*, 1878-1879, xviii, pt. 2, 100.

Monod, C. *Du mal perforant*. *Progrès méd.*, Paris, 1884, xii, 20.

Montaignac, A. *De l'ulcère arterio-athéromateux du pied (autrement dit mal perforant)*, Paris, 1868.

Montil, S. Ulcera perforante ó mal perforante del pie. *Rev. Med.-quir.*, Maracaibo, 1883, 4-1, No. 5, 7 10.

Montmeja, A. Mal perforant du pied. *France méd.*, Paris, 1873, xx, 124.

Morat. *Arch. gén. de méd.*, 1873.

Morat. Section du nerf sciatique poplitée interne par un éclat d'obus; mal perforant des deux premiers orteils. *Lyon méd.*, 1876, xxii, 84, 121; also *Rev. méd.-phot. des hôp. de Paris*, 1876, viii, 81, 85.

Morel, Lavalee. *Gaz. des hôp.*, 1860, p. 436.

Morer, P. Note sur un cas de mal perforant du pied accompagnant l'ataxie locomotrice. *Gaz. hebdom. de méd.*, Paris, 1882, 2 s., xiv, 495.

Moritz, E. Ueber Plantar-Geschwüre. *St. Petersburg. Med.-Ztschr.*, 1875, n. f. v., 1-22.

Morpugo, B. Sur les processus histologiques consecutif à la neurectomie sciatique. *Arch. italiennes de biologie*, xvii, fas. iii, 432.

Mosetig. Fussgeschwüre: Amputation des Unterschenkels Tod durch Erschöpfung. *Ber. d. k. k. Krankenanst. Rudolph Stiftung in Wien*, 1871-1873, 222.

Mott, V. A Case of Circular Callous Ulcer in the Bottom of the Foot. *Med. and Surg. Reg.*, N. Y., 1818, 1, 129-133.

Muron. Mal perforant plantaire. *Bull. de la Soc. anat. de Paris*, 1868, xiii, 589-593.

Neale. *Lancet*, 1871, vol. i, p. 144.

Nélaton. Affection singulière des os du pied. *Gaz. des hôp.*, Paris, 1852, xxv, 13.

Nélaton. Mal perforant du pied. *Gaz. des hôp.*, Paris, 1855, xxviii, 465.

Ogston, A. Case of Perforating Ulcer of the Sole of the Foot. *Lancet*, London, 1876, ii, 13.

Orsi, N. Un caso di ulcera perforante del piede. *Scuola med. di Napoli*, Napoli, 1880, iii, 16-44.

Ostrom, H. A Case of Idiopathic Gangrene following Perforating Ulcer of the Foot. *Phys. and Surg. Inst.*, Buffalo, 1888, iv, 337-344.

Owen, E. Perforating Ulcer of the Foot in a Child. Remarks. *Lancet*, London, 1884, i, 611.

Parisé. Mal perforant du pied. *Bull. méd. du Nord.*, Lille, 1864, v, 558-560.

Parmentier. Mal perforant du pied. *Union méd.*, Paris, 1861, 2, p., x, 105-108.

Parona, F. Note cliniche sulla cura del mal perforante del piede. *Gazz. d. osp.*, Milano, 1882, iii, 755, 763.

Paul. *Krankheiten des Bewegungsapparates*, Leibr., 1861, 479.

Pean. Du mal perforant plantaire. Symptomes et diagnostic. *Leçons de clin. chir.*, etc., 8vo, Paris, 1882, 1, 33.

Pean. Mal perforant du pied; artérite chronique. *Bull. de la Soc. de chir. de Par.*, 1864, 2, s. v., 79, 81; *Gaz. des hôp.*, 1863, p. 116.

Peraire, M. Du mal perforant palmaire. *Arch. gén. de méd.*, Paris, 1886, ii, 26-41; *Arch. gén. de méd.*, Paris, 1886, ii, 173, 193, repr.

Perforating Ulcers of the Foot. *N. Lond. or University College Hosp. Reports*, 1885, London, 1886, 24-26.

Petel. Une observation de mal perforant d'origine mécanique. *France méd.*, Par., 1878, xxv, 473.

Piffard, H. G. Perforating Disease of the Foot. *Med. Rec.*, vol. i, p. 125.

Pitay, E. *Contribution à l'étude de la pathogénie du mal perforant du pied*, Paris, 1875.

Pitres, A., et L. Vaillard. Altérations des nerfs périphériques dans deux cas de maux perforants plantaires et dans quelques autres formes de lésions trophiques des pieds. *Arch. de phys. norm. et path.*, Paris, 1885, 3 s., v, 208-282.

Polak, J. E. Chronische Fussgeschwüre. Flannell-Druckverband. *Ztschr. d. k. k. Gesellsch. d. Aertze. zu Wien*, 1849, t. 455, 458.

Pollaillon, M. *Bull. de la Soc. d'anat. et de phys. de Bordeaux*, 1883, p. 78.

Pollaillon. Mal perforant du pied consécutif à une neurite sciatique produit par une injection interstitielle d'éther. *Union méd.*, Paris, 1884, 3 p., xxx, vii-791, 793.

Poncet. Mal perforant et lépre antonine. *Gaz. heb. de méd.*, Paris, 1872, 2 p., ix, 51, 54; also *Rec. de mém. de méd. mil.*, Paris, 1873, 3 s., xxix, 566, 572; et *Rec. de mém. de méd. mil.*, Paris, 1864, iii serie, p. 306.

Potier-Duplessy. Mal perforant du pied ayant nécessité la désarticulation du 5° metatarsien. *Rec. de mém. de méd. mil.*, Paris, 1865, 3 p., xiii, 476, 479.

Pronk, D. W. *Iets over malum perforans pedis*, 'SGravenhage, 1884.

Pryce, T. D. Perforating Ulcer of the Foot. *Prov. Med. Jour.*, Leicester, 1887, vi, 203-206.

Puel, G. Quelques considérations au sujet de l'étiologie du mal perforant du pied. *Soc. de méd. d'Anvers*, 1875, xxxvi, 481-492.

Queussac, E. F. *Du mal plantaire perforant (considérations sur sa pathogénie)*, Paris, 1875.

Reilly. *Lancet*, vol. i, 1871, p. 200.

Ricci, T. *Dell' ulcera perforante del piede*, Spallanzani. Modena, 1874, xii, 541, 551.

Richard. *Gaz. des hôp.*, p. 384, 1857.

Richet. *Gaz. des hôp.*, 1859, p. 11.

Robertson, J. K. A Case of "Mal Perforant du Pied." *Glasgow Medical Journal*, 1889, xxxii, 421, 427.

Romberg. *Lehrbuch der Nervenkrankheiten*, i, p. 208.

Romisch, O. Ueber Fussgeschwüre und ihre Behandlung. *Wien. med. Press*, 1887; xxviii, 1289, 1294; xxviii, 1328, 1332.

Romisch, O. Zur Behandlung der Fussgeschwüre mit Unna'sche Zinkleimverband. *Wien. med. Presse*, 1891, xxxii, 1104, 1106.

Savory, W. S., and Butlin, H. T. Cases of Perforating Ulcer of the Foot, with an Appendix on the Literature of the Subject. *Med.-chir. Trans.*, London, 1879, lxii, 373-392, 3 pl.; abs. *Lancet*, Lond., 1879, 1, 477.

Savory, W. S. On Perforating Ulcer of the Foot. *Brit. Med. Jour.*, London, 1879, 1, 587.

Schlusser, H. *Ueber das mal perforant du pied*. Inaug.-Dissert., Kiel, 1874.

Schmutz. Nutzen der äusserlichen Anwendung des Arseniks mit Calomel bei einem corrodirenden Fussgeschwüre. *Samm. d. Neuest in Wissenswürdig a. d. ges. Med.*, Leipsic, 1840, n. f., xiii, 225-227.

Schoemaker, A. N. Pathologisch-anatomische Mittheilungen über das sogenannte "Mal perforant du pied." *Arch. für klin. Chir.*, Berlin, 1874, xvii, 144-153, 1, pl.

Schwimmer. V. Ziemssen's *Handb.*, xiv.

Sedillot. *Contributions à la chirurg.*, Paris, 1868, i, p. 625.

Sedillot. Ulcère perforant du pied. *Gaz. des hôp.*, Paris, 1865, xxxviii, 497.

Smith, N. *Lancet*, 1870, vol. ii, p. 468.

Sonnenburg. Zwei Fälle von Malum perforans pedis. *Deutsche Ztschr. für Chir.*, Leipsic, 1873-'74, iv, 408; 1875-'76, vi, 261; also *Trans. Gaz. lek. Warszawa*, 1875, xix, 41, 52.

Soulages, C. *Le mal perforant, sa pathogénie*, Paris, 1874; also Paris, 1875.

Southam, F. A. Perforating Ulcer of the Foot and its Connection with Diseases of the Nervous System. *Brit. Med. Jour.*, London, 1883, ii-1222.

Stammler. Heilung eines alten Fussgeschwüre. *Allg. med. Ann. Altenb.*, 1803, 122, 125.

Stendener, F. *De lepra anæsthet.*, Habilitationsschr. Halle, 1867, p. 18.

Streubel. Editorial. Schmidt's *Jahrbuch*, 60, 136, sec. 197, 1866; *Hospitals Tidende*, 1866, No. 16.

Suchard. Note sur les lésions histologiques de l'onyxis développé au voisinage du mal perforant. *Bull. de la Soc. anat. de Paris*, 1882, 4 p., viii, 145; also *Progrès méd.*, Paris, 1882, x, 993.

Tosini, A. Disarticolazione medio-tarsiana e tenotomia a Achille per ulcera perforante in piede equino-varus. *Gazz. med. ital. prov. Veneta*, Padova, 1862, v, 469.

Trelat. Mal perforant aux deux pieds d'origine spinale chez une femme. *Gaz. des hôp.*, Paris, 1883, lvi, 1170, 1172.

Treves, F. Perforating Ulcer of the Foot and Progressive Locomotor Ataxia. *Lancet*, London, 1882, ii, 653.

Tuffier et A. Chipault. Notes cliniques sur le mal perforant. *Arch. gén. de méd.*, Paris, 1891, ii, 257, 413, 685.

Uhde, C. W. F. Mal perforant du pied. *Deutsche Klin.*, Berlin, 1857, ix, 427.

Ustanz, J. El mal perforante del pie. *An. de Med.*, Madrid, 1877, iii, 298-302.

Vandever, A. Perforating Ulcer of the Foot. *Med. News*, Phila., 1888, liii, 237.

Vantalou, J. *Du mal perforant plantaire*. Montpellier, 1874.

Velpeau. D'une variété d'ulcère du talon. *Gaz. des hôp.*, Paris, 1843, 2, p., v, 2.

Vesignie. Sur une affection singulière des os du pied. *Gaz. des hôp.*, Paris, 1852, xxv, 58.

Virchow. *Die krankhaften Geschwülste*, ii, p. 528.

Volkman. Krank. der Bewegungsorgane. *Hand. d. Chir.*, von Pitth und Billroth, ii. Bd., 2. Abth., 2. Lief., sec. 731.

Weiler, Alb. *Ueber das mal perforant du pied*. Würz., 1886.

Weinlechner, J. Beiderseitige Fussgeschwüre; Circumcision das Geschwüres am linken Fusse: Erysipel, Scorbut, etc. *Ber. d. k. k. Krankenanstalt, Rudolph Stiftung in Wien* (1876), 1877, 410.

Wernher. *Deutsche Zeitschrift für Chirurgie*, sec. 519, 1876.

Zannini, M. Dell' ulcera perforante del piede, Tesi di laurea. *Bull. della Soc. med. di Bologna*, 1885, 6 p., xvi, 363, 381, et repr.

Zucchera, G. Sull' ulcera perforante del calcagno. *Progress. med.*, Napoli, 1889, iii, 258-269.

"MEDICAL PAPYRI OF ANCIENT EGYPT COMPARED WITH GREEK AND ROMAN AUTHORS."

SUMMARIZED FROM THE GERMAN.

By F. B. STEPHENSON, M. D., U. S. N.

DURING a cruise on the Asiatic station, 1891-'94, it was the writer's good fortune to meet the genial and scholarly Heinrich L. Emil Lüding, then engaged in educational and literary work at Singapore. Our talks on Sanscrit, Malay, Chinese, Japanese, and general linguistics naturally led him to think of his own special studies. One of these is the address given when he received the degree of Doctor of Philosophy (*philosophischen Doctorwürde*) from the University of Strassburg. By his kindness I have been enabled to possess a copy of this dissertation (published in 1888); a description thereof is herewith offered and an abstract of its subject matter.

The entire essay comprises a hundred and seventy pages, its German text broken by figures, notes, quotations, etc., in hieroglyphics, Coptic, Hebrew, Arabic, Greek, Latin, French, Italian, English, and Swedish, with references to many an authority in the world of letters and criticism.

The introduction informs us that Homer, Herodotus, Diodorus, Clement of Alexandria, Pliny, and Galen wrote on the astounding wisdom of the Egyptian priest-physicians, while mediæval students filled volumes with their translations and commentaries in regard to the early life of the healing art, picturing its condition on the shores of the Nile.

In the first chapter the author means to show by recent discoveries that Galen was not very accurate when he set down primitive Egyptian medicine as "nonsense" (*τὰ ληρότατα*). From a comparison of older papyri with those more lately found it appears that the scribes of that period may be charged with great carelessness and unpardonable haste. Passing by a critique in detail, he considers in particular the *Ebers Papyrus* of the University Library in Leipsic as being unusually well written, comprehensive, and the best preserved of such medical records. The one hundred and eight pages, in hieratic characters, contain the fullest compendium extant of Egyptian materia medica. On the reverse of the first leaf is a calendar, from which it is deduced that the origin of the manuscript was in 1553 to 1550 B. C. Moreover, the technique of the writing, as well as the forms of expression, indicate its composition long before, the document in question being merely a copy.

Diodorus refers to the "infallible," "not-to-be-changed" text, compiled from previous authors, as "hermetic," or "inspired," to use a modern term. (Herein we may see the hieratic origin of the "healing art," and learn that medicine then partook of the "infallibility" yet attributed,

prerogatively, to the priest as a theologic actor—or, this indicates the former identity of function for the now widely separate callings?)

This papyrus begins with some mythologico-magical forms to be used at times of compounding and administering medicines. (The quack of to-day still enjoys revenues from this method of influencing weak and ignorant minds, as well as those who "like to take medicine," or think it necessary to always "do something!") Part first treats on diseases of the abdomen, medicaments being applied at each end of the alimentary canal. Even in *The Book of the Dead* we find that not only sufficient food but also regular watery evacuations are promised as a large part of expected felicity. On the other hand appear remedies against excessive alvine discharges and hæmorrhoids. The bark of the branches and roots of the pomegranate is given for worms, diarrhœa, and dysentery. Part second refers to ailments of the anal region, the remedies named evidently implying suppurative affections. Cotton was used to dress wounds, etc. Dates cooked in oil and with yeast are recommended, probably as evacuant, against satyriasis and nymphomania. Inasmuch as the ancient Egyptians did not define so precisely as do moderns the various anatomical regions, exact localization, especially in pathologic diagnosis, is difficult if feasible. Part fourth gives several recipes of unusual attributed strength prepared by and for the gods. These "medicine deities" are Ra, Su, Tefnut, Seb, Nut, and Isis. In part ninth the inhalation of warm vapor from medicaments is directed. The cover of the vessel containing the material is to be pierced and a tube put in for this purpose. We read throughout the tenth part of numerous eye troubles, one being pterygion. As a remedy for bites of animals, etc., fresh meat, locally, is recommended on the first day. Part twelfth contains prescriptions of various mixtures for dyeing the hair, for causing it to grow, and to fall out. The last occurs in connection with allusions to the intrigues and rivalries of the harem. The fifteenth part records the application of bran to compound comminuted fractures. In the sixteenth part goose grease is mentioned as much used to relieve the pain of gout. Part twentieth states that "they filled teeth with gold." Herodotus refers to the dentistry of that age, and evidences of such work are found in mummies. We find recipes for painful and loose teeth, with others for strengthening the gums. They took great care of them in regard to cleanliness. In the twenty-first part both superficial and parenchymatous hepatitis are considered. As a conclusion of these examples, the twenty-fourth division of the papyrus has remedies for diseases of women: to combat prolapsus uteri and affections of the vulva, vagina, bladder, and rectum, with remarks on conception, lactation, nursing, *et alia*.

More than seven hundred materials were used as medicaments, the mineral, vegetable, and animal kingdoms being represented in varied and multiform adaptations. The Egyptians were specially fond of complex mixtures, avoiding simple prescriptions. Some contained ten or twelve ingredients and more, drawn from the triple realm of terrestrial objects. The celestial elements were made to influence the union of drugs and their administration. The number

"sixteen" seemed to have had a mystical influence in the preparation of compounds. The text ends abruptly; some portions were found as yet too hard for translation.

Chapter second of Dr. Lüring's work contains the names of various anatomical regions and constituents. The distribution of the blood-vessels is most arbitrary, from our point of view in mind and science, their number being somewhat proportioned to the mass and form of the parts supplied. It was taught that through these the various organs received air and moisture. The functions of the kidneys, it seems, were unknown to the ancient Egyptians. The seminal glands of the donkey served as a medicament (compare Brown-Séquard's "specific" and thyreoid extract [or "thyreoidin"]). The same word indicated "heart" and "stomach." (This vagueness of expression is common to primitive peoples and uncultivated minds, and to it may be traced for origin such phrases as "He has no heart for such work"; "He can not stomach that," both referring to the emotional part of man, being secondary meanings derived from primary physical impressions.) The etymology of *ren* (kidney) from the same root as the Greek *φρῆν*, *φ* being present or absent according to euphony (*Mundrechtmachung*, or ease of enunciation), compared with the scientific meaning of such terms, shows how indefinite were the ideas of the ancients in regard to the seat of nervous action. Psychic irregularities were attributed to bodily abnormalities. In *The Book of the Dead*, No. 172, the description of various parts of the body is similar in rhetorical form to that in Solomon's *Song of Songs*, the great Nature poem of the Orient.

Of a certain kind of sickness, in given conditions, it is written: Do not adopt any remedial measures; the symptoms will disappear of themselves. We have here indicated the "natural tendency toward health," upon which so much stress has been laid during the earlier part of the present century. Attention is thus called again, as has been done in the course of time occasionally, to the anciently well-known principles of life in normal or morbid action.

Chapter third treats on ophthalmic troubles and remedies. The chief drug was stibium (Sb_2S_3), which Pliny describes as existing in masculine and feminine forms, according to rough or mild physical characters. Resinous exudations were used for swellings and inflammations of the eyes, also to give them strength and beauty. A very large number of vegetable products were employed as medicine. Different sorts of honey were applied topically. The milk of a woman who had borne a male child, in composition, was much prized. Various animal oils were utilized to cool the parts involved. Blood from many sources had a place in the armamentarium of the ancient ophthalmiatrist.

Chapter fourth is devoted to the care of the hair (*kosmetikon*), with prescriptions from Greek authorities, comprising multiform and wonderful recipes (attributed to Cleopatra) against gray hair and baldness.

In chapter fifth diseases of women are considered. Although ancient gynæcology was very far from the modern widely developed status, yet science in this regard had reached an important stage of evolution, beyond which it did not progress during several thousand years. The treat-

ment of many affections was practically the same as now—by injections, clysters, various substances applied to the genitalia, bandaging, etc. Nearly all the materials used by us were employed in the same way, as shown by Greco-Roman prescriptions, a great portion of which were taken either piecemeal or bodily from the Egyptians. A sign of pregnancy is given as follows: The eyes appear contracted and sunken; the sclerotic is not so white as usual, but looks more bluish. Various hocus-pocus means were thought to be of value in ascertaining the fertility or sterility of man and woman, also the sex of the child yet unborn.

The author refers in chapter sixth to his perplexity in finding an exact equivalent for the hieroglyphic names of plants, minerals, and other things serving as medicaments. It is stated that there are numerous errors of rendering in Dr. Wiedemann's *Collection of Egyptian Words*, translated or paraphrased from classic authors, published in Leipsic in 1883. In the ancient manuscript of Dioscorides are found the synonyms of such terms in Roman, Dacian, Gallic, Punic, Egyptian, Etruscan, and Dardanish, with expressions of Zoroastrian priests and other magi. The lexicon of Pamphilus is as lacking in accuracy.

We read in chapter seventh, the last, that the compounding of medicines and their chemical relations were the secrets of certain priestly classes. Even the name of the science "chemistry" seems to be derived from this fact, inasmuch as the word may be translated "the hidden" or "dark art." In mixing drugs, the "precious rod" of silver or gold was held to be specially efficacious. The inhalation apparatus, essentially the same as that of to-day, was doubtless the source of the distillation retort.

Frequent reference is made to the divine origin of remedial measures and means. This historic people lived close to Nature in her myriad forms of manifestation. Flowers, fruits, and other modes of life, together with various phenomena more or less vaguely comprehended, were intimately associated in every phase of their existence.

The difficulties of such a study as this subject implies are acknowledged; and Dr. Lüring hopes, indeed, that others may be incited by his initial effort to more extensive and successful investigation. He points out mistakes in some previous translations, stating reasons, admitting the while his inability as yet to furnish a correct version.

With all the labors of thorough and ambitious students, much work in such fields still remains for the scholars of the future.

FORCIBLE APEX EXPANSION IN INCIPIENT PHTHISIS.

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It is generally conceded that a suitable soil is absolutely necessary for the life and development of the tubercle bacillus. It may be asserted also that this suitable soil is usually found in the apical alveoli, and exists there as the result of a sluggish circulation of air in the air cells and of blood in the blood-vessels. Statistics of the mor-

tality of tuberculosis show that the disease is most active and frequent among those who occupy a stooping position which drags down the upper chest by the weight of the arms and diminishes the capacity of the apices. This is a sufficient explanation for the location of the disease in the apical tissue.

Hyperæmia of the parenchyma, together with the exudation of a thick gelatinous and albuminous fluid into the alveoli with large and small cells and some red blood-corpuscles, go to make up the suitable soil or consolidated area. Some time during the existence of this consolidated area the tubercle bacillus gains access and begins its destructive work. The miliary tubercular deposit probably comes later in the progress of the disease.

Dr. Prudden has shown in a recent article that when other pyogenic germs infect the tubercular lung the process of destruction is greatly accelerated, and cavities form rapidly. Before the destruction of tissue begins the consolidated area is composed mostly of alveoli plugged with inflammatory or catarrhal products, which may or may not be infected with tuberculosis; and the great danger to the patient is that they may become tubercular. Now, if these plugs can be blown out of the alveoli and a forced use of the alveoli made, they will soon resume their normal condition. Every cure of phthisis is the result of an increased respiratory activity and capacity, which is directly antagonistic to the development and extension of the disease.

Dr. T. J. Mays, in an excellent article in the *New York Medical Journal* for March 10, 1888, has shown that apex expansion or ventilation is the most important factor in the cure of incipient phthisis. This condition is promoted in the highly attenuated atmosphere of high altitudes. The whole lung capacity, including the apices, must be used in order to supply the required oxygen. This increased use of the air cells fills them with air and gradually expels the plugs of *débris*, thus limiting the destruction and restoring healthy conditions.

Now, as the disease is confined to the apex from the start, can not this great end be accomplished by artificial means, or rather voluntary effort? Exercises in pulmonary gymnastics intelligently directed toward greater apical expansion and increased chest capacity will give the very best results. This line of treatment may be supplemented by the use of the pneumatic cabinet at the office.

A cure after this manner is radical and permanent, as there is no *débris* left in the alveoli to favor the return of the trouble.

A careful diagnosis should be made in the beginning. In too many cases the patient is told that he has a little bronchitis; valuable time is wasted and the golden opportunity lost. When the destructive processes once begin, the chances are greatly against recovery. Treatment should be instituted as soon as the symptoms first show themselves whether a distinct area of consolidation can be discovered or not; for often it is discoverable only after a considerable area of tissue has become infiltrated.

The method I have found most useful is not only full breathing, which has been recommended in various ways, but after a full inspiration the breath is held for a moment

by closing the glottis. The effect is increased if, during the holding of the breath, the lower chest is compressed with the hands. After a few weeks the inspirations become much fuller and the tension developed greatly increased. The arms should be raised in order to get the fullest inspirations. These efforts at forced expiration should be continued for ten to fifteen minutes every two hours during the day—before arising in the morning and after retiring at night. The holding of the breath I consider a very important point in the treatment. It will require some practice to be done properly so as to give the best results. It should produce a ballooning of the chest and consequently of the air cells themselves. The immediate result will be an increased amount of oxygen in the blood—a strengthened heart's action and a facilitated expectoration, which alone gives great relief. The air cells will be kept almost constantly open and ventilated and their plugs of *débris* expelled, old pleuritic adhesions stretched, and the chest visibly enlarged. The chest expansion will be increased in a short time and the progress of the disease inhibited. This treatment is, of course, applicable to the quiescent periods of the disease. The patient should be under the constant observation of the physician. In the beginning and for the first week the efforts should not be too violent or some pleuritic pain may be produced. During and for a week after hæmorrhage has completely stopped, pulmonary gymnastics should be suspended.

It will be observed that the means for removing the local lesion of consumption are purely mechanical and consequently certain of results. Removal of a nasal obstruction is mechanical, and is very often necessary in order to facilitate the entrance of air into the lungs and check the catarrhal tendency. Increased vital capacity is the great desideratum, without which there can be no cure of phthisis.

The treatment by differentiation of air has about the same effect on the lungs, but one or two treatments a day will not be sufficient to keep the collapsed or plugged alveoli ventilated.

Noble Smith (*British Medical Journal*) has employed a brace by which the shoulders are drawn back, arms supported, and the stoop prevented with good results in cases seen early enough.

A corset which prevents abdominal breathing would compel a greater use of the upper chest cavity. The spirometer may be used to measure the capacity of the chest, and the manometer the tension developed or expiratory power.

To overcome the muscular atrophy about the chest and to increase its expansion, I have my patients learn the use of Indian clubs and dumb-bells, and use them regularly. To protect the patient against sudden changes of atmosphere in our rather variable and harsh climate, he should wear a chamois-skin jacket over a medium weight flannel. Catarrhal conditions of the nose and throat should be corrected so that every oft-repeated cold does not aggravate the pulmonary congestion. At the same time proper medication should be employed in order to increase the chances and rapidity of recovery.

All this requires more work and persistence than simply taking medicine, and patients need to be constantly encouraged by the positive assertion that they will recover their health if they use the means.

126 STATE STREET.

BUBONIC PLAGUE IN CANTON.

By MARY W. NILES, M. D.,
CANTON, CHINA.

THE epidemic now raging in Canton is characterized by glandular swellings. It is identical with the great plague of London. Heretofore it has not been endemic in Canton. Dr. Kerr has been here for forty years, and has never seen it. It is endemic in the province of Yunnan. When it began there is not known, but the first severe epidemic was about 1850, according to one author; some say it has existed there for the past six centuries; some Chinese say it came by caravans from Burmah. Twenty years or more ago it made its appearance in Annam. It then spread into two adjacent districts belonging to Canton Province and to the province of Kwang Sai. Pakhoi, a treaty port in one of these districts, has had it for twelve years and perhaps longer. Four years ago the plague arrived at Mui Luk, about two hundred miles this side of Pakhoi. Last year it was seen for the first time in the city of Yeung Kong, over a hundred miles beyond Mui Luk. This year it has reached Canton, two hundred and more miles farther to the northeast. It was found to travel more along the coast lines. Twenty years have thus been occupied in marching between five and six hundred miles. To me it is most probable that the plague took its course from Yunnan down to Annam, which is the most natural way for traffic, and then went up the coast. All the places to which the plague has come continue to have it, returning in its season more or less every year. It commences in some places in the winter and continues till midsummer. In Canton it commenced as early as January to my certain knowledge, as I saw my first patient January 16th. There must have been few cases, comparatively speaking, for I did not see another till the last of March. I then heard for the first time that there was a very fatal epidemic in the city. The course that the disease has taken in Canton is somewhat erratic. At first it was confined to certain streets inside the city walls. It then spread directly along the wall, at the foot of which is a filthy canal meagerly supplied with water. Later it was to be found in all districts. But it would rage in one locality for a time, and then leave that locality and select another for its prey. While violent in the western suburbs, it was reported that there was no plague inside the city walls. A locality is reported free for some weeks; suddenly the plague returns to recommence its destructive work for a time. This method appears inexplicable.

Professor Kitasato, of Japan, who has held the office of chief assistant to Dr. Koch and was in his laboratory for four years, came to Hong Kong to study the plague during the outbreak. He found the bacilli in the blood. They are rods with rounded ends, such a bacillus as has not been

seen in any other disease. He is pursuing his investigations with reference to prevention and treatment. How the poison really enters the system is an open question. An infant nursed the breast of her mother, who had the disease fully developed, dying the next day, and yet the child had no symptoms, and the mortality of the plague is greatest among children. A man who owned a small ferryboat rented it for dying patients. At one time the body of a woman lay in the bottom of his boat all night while he slept on a bed made of boards laid a few inches above the dead body. He received no harm. Of all who have doctored or nursed patients, I know of none who have taken the disease, except as they had been already exposed in an infected house. Unsanitary surroundings or direct inoculation appear to me to be necessary to the development of the plague. The more unsanitary the surrounding, the more virulent the attack. In an infected house the rats die first. The patient is usually attacked very severely. The temperature generally rises to 105° F., not infrequently to 106°, and sometimes to 107°. There is very apt to be a petechial eruption. Generally the glands of only one region are affected, the inguinal glands on one side most frequently. Next in frequency are the cervical glands, and a smaller number of patients are affected in one axilla. In one patient the glands in the popliteal space were the only ones affected. These swellings are usually very painful, and, if the patient survives, in many cases go on to suppuration. There is generally twelve hours of fever before the affection of the glands appears.

There generally is a dull, apathetic countenance. There may be stupor or delirium, or the mind may appear unaffected, the countenance not indicative of the deadly malady. Often the patient will walk when extremely ill and almost unconscious. Some have fallen dead in the streets. Passengers have walked on board steamers, nothing unusual being noted in their appearance by inspectors, and died on board in a few hours. There is apt to be a remission in the severe symptoms the second day, but the third day the fever again rises and death ensues. If the patient shows any signs of improvement the fourth day, the case looks hopeful. As death approaches, purple spots may appear on the body. Hæmorrhages also may occur from the mucous membranes—such as nosebleed, black vomit, and hæmorrhage from the gums. Pregnant women attacked with the plague are apt to abort. After a few days the patient may pass into a typhoid state. Some have carbuncles and some pustular eruptions. The buboes may discharge indefinitely. In the beginning of the epidemic it is reported that many died instantly upon being attacked. It is reported that out of ten attacked, one or two only recovered.

In the fourteenth century the plague is said to have been spread through Europe and Asia from China. It is to be hoped that we shall not again become the distributing center for the world. A telegram of June 6th from Adelaide, Australia, of a plague among the mice threatening to exterminate the race was not reassuring. A city that follows hygienic rules has nothing to fear from bubonic plague.

July, 1894.

THE
NEW YORK MEDICAL JOURNAL,
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FRANK P. FOSTER, M. D.

NEW YORK, SATURDAY, OCTOBER 13, 1894.

THE NEW TREATMENT OF DIPHTHERIA.

THERE is a very general impression that international medical congresses have had their day, and we confess to having shared in this feeling, but it must be allowed that the recent International Congress of Hygiene and Demography, held in Budapest, has gone far to neutralize the notion. Of not the least influence in this direction was the discussion of the antitoxine treatment, or serotherapy, of diphtheria, and among the most striking features of that discussion was a paper presented by M. Roux, a summary of which we find in the *Presse médicale* for September 15th. M. Roux remarked that in 1891 he had instituted a series of experiments on animals and children with regard to the treatment of diphtheria with antitoxic serum. They had been made at the Pasteur Institute, with the help of M. Martin and M. Chaillu. The toxine had been produced by cultivating the virulent diphtheritic bacillus in bouillon in contact with the air. Under ordinary conditions, he said, these cultures had to be maintained for some months at a temperature of 100° F., in order to allow the poison to accumulate in them. After these cultures were completed they were filtered on a Chamberland filter, and the clear liquid was kept at the ordinary temperature in well-corked bottles and sheltered from the light. When the toxine was obtained, the animal whose serum was to constitute the antitoxine must then be accustomed to it, but, as the process might produce serious accidents, the dose must be attenuated. Fränkel had modified the toxine by heating it to a temperature of 150° F., and Behring had mixed it with iodine trichloride. A third of its weight of Gram's solution was to be added before using, and after a few moments the toxine was injected under the skin. A medium-sized rabbit would bear, at the start, half a cubic centimetre of this liquid. At the end of a few days the injections were renewed and continued for some weeks. The doses of iodized toxine might be increased or the proportion of iodine diminished. Eventually the toxine might be given pure. The animal must be weighed frequently, and the injections interrupted if the weight decreased, as a cachectic condition would otherwise set in which would result in death. In these experiments, said M. Roux, one must work slowly.

Dogs had been found to furnish a very active serum. Sheep, and especially goats, were very sensitive to the diphtheritic poison, and the process of conferring immunity on them should be carried out with great caution. It was the same with cows, whose milk might become an important antitoxic source. Of all animals capable of furnishing large quantities of serum, the horse was the easiest on which to confer im-

munity; it bore the toxine much better than any other animal mentioned. In many cases from two to five cubic centimetres of strong toxine had been injected in the beginning, and caused only a passing fever and local œdema which had promptly disappeared. M. Roux and M. Nocard had undertaken to confer on horses immunity against diphtheria because their experiments with regard to tetanus had shown that horses' serum, even in considerable doses, was harmless for the laboratory animals and also for man. Injected under the skin, it was absorbed in a few minutes without causing any local reaction. Moreover, nothing was easier than to draw large quantities of blood from the jugular vein of a horse, and from this blood a perfectly limpid serum was extracted. The speaker had seen horses from which blood had been drawn more than twenty times, and the vein had remained flexible and also permeable. The antitoxic power of their serum was very great, too, and it was easy to increase it still more. The horse, then, was to be preferred to other animals for the preparation of antidiphtheritic serum. On account of its indifference to the diphtheritic poison the experimenter avoided the difficulties that were found among more sensitive animals. In animals that received this antitoxine, immunity was acquired on the spot, so to speak, but it did not last; it disappeared gradually, in a few days or weeks, according to the power and the amount of the serum administered. This transient immunity was very different from that, painfully acquired, but lasting, which followed carefully given and repeated injections of the diphtheritic poison.

With regard to the action of serum in diphtheria of the mucous membranes, M. Roux said that the majority of the experiments in serotherapy had been made on animals inoculated under the skin. Behring had cited some cases in which diphtheria had been inoculated in the mucous membranes. In regard to the preventive injections of serum, female guinea-pigs always resisted if a sufficient dose of the serum was injected before the mucous membrane of the vagina became inoculated. In all cases a false membrane formed. From the second day, the local lesions diminished, the false membranes became detached, and the repair of the mucous membrane set in.

With regard to serum injected after inoculation, if the false membrane was already well developed, and the redness and tumefaction of the vulva were very pronounced, an injection of a dose of from a ten-thousandth to a thousandth of the weight of the animal should be administered, and the animal would make a good recovery. The rapidity with which the detachment of the false membrane and the disappearance of the bacilli among guinea-pigs treated with this method occurred was astonishing. Guinea-pigs inoculated in the trachea died ordinarily in three days, when not treated, and rabbits in from three to five days. When these animals were inoculated after having received the serum, they showed no symptoms of diphtheria, or, at the least, no apparent uneasiness. When an injection of serum was made after the animal had been inoculated in the trachea, the diphtheria was arrested.

Cases of diphtheria in which special bacilli were associated

with certain bacteria, notably streptococci, were among the gravest known, and in these cases it was questioned whether antidiphtheritic serum was capable of bringing about recovery. It was a subject of great interest, said M. Roux, because of the frequency of these complicated forms among children. M. Funck thought that the simultaneous infection of streptococci and a specific bacillus indicated an increase of the production of the diphtheritic toxine, and that the presence of the streptococcus did not impede in any way the neutralizing action of the serum on the diphtheritic toxine.

M. Roux had inoculated in the trachea in order to realize as much as possible the conditions usually met with. After tracheotomy, the rabbits received in the trachea a mixture of streptococci and diphtheritic bacilli. The streptococci had been taken from a child who had been attacked with diphtheria; they were in a pure state, did not disturb the bouillon, and were not very virulent for the rabbit. Two cubic centimetres of a recent culture in bouillon, injected into the veins of a rabbit, killed it in ten days. One cubic centimetre introduced under the skin caused an erysipelatous patch, with passing fever but no serious constitutional effects. The same dose, introduced into the trachea, gave rise to a slight rise of temperature without pronounced uneasiness. The diphtheritic bacillus that M. Roux had associated with this streptococcus was virulent. In cases of diphtheria associated with streptococci, the serum rarely brought about recovery, not because there was a formation of a larger quantity of diphtheritic toxine, or because the antitoxic action of the serum was impeded, but because the cells attacked by the poison of the streptococci no longer felt the stimulation of the antitoxine. In these cases, asked M. Roux, might not better results be obtained by injecting simultaneously the antidiphtheritic serum with the serum of a rabbit that was proof against erysipelas?

M. Roux undertook the treatment of diphtheria among the children at the *Hôpital des enfants malades*. No choice was made among the patients, and the general care and the local treatment were not modified. In this manner results were brought about easily comparable with those previously obtained. Out of two hundred children treated with the serum, only seventy-eight had died, a mortality of twenty-six per cent. In the same hospital the mortality had formerly been fifty per cent. These figures, said M. Roux, show the efficacy of the serum treatment. At the first subcutaneous injection of serum the dose was twenty cubic centimetres. At the end of twenty-four hours a second injection was given, which generally sufficed to bring about recovery. The quantity of liquid injected varied between twenty and ninety cubic centimetres for each patient.

In the *Journal de clinique et de thérapeutique infantiles* for September 13th, M. G. Variot, commenting upon M. Roux's communication, says that it corroborates other physicians' investigations on this subject. In April, 1893, Behring and Kossel published statistics showing the percentage of recoveries to be eighty. In 1894 Ehrlich, Kossel, and Wassermann reported results obtained in two hundred and twenty cases of diphtheria treated by hypodermic injections of serum taken from goats.

The mortality in the cases where tracheotomy was not necessary was 23.6 per cent. If the disease had been treated from the first day by this method, the number of recoveries would have increased to ninety-seven per cent. Where tracheotomy was performed, the mortality was forty-four per cent. The most recent German statistics showed that the mortality fell from fifty-three per cent. to twenty-eight in cases where the serum treatment was employed. Behring was convinced that the mortality would not exceed five per cent. if the children were treated by this method within the forty-eight hours following the onset of the disease. To M. Roux belongs the credit of introducing this method into France, and the statistics that he obtained in his experiences at the *Hôpital des enfants malades* are very nearly in accordance with those of the German physicians. It seems that the results obtained for several years in Germany are so conclusive that the municipality of Paris has decided to erect a laboratory near one of the children's hospitals for the special purpose of making antitoxic serum to be used in diphtheria.

DR. OLIVER WENDELL HOLMES.

THE silver cord is loosed, the golden bowl is broken, the man has gone to his long home, and the mourners go about the streets! It would be trite to say that it is with profound regret and with a sense of irreparable loss that we refer to the death of Dr. Oliver Wendell Holmes, professor, poet, and, if autocrat, so gentle and genial in his autocracy that none considered it irksome.

Born on August 29, 1809, the son of a Cambridge clergyman, he grew up in an atmosphere of learning and culture. He has somewhere said that the education of a gentleman should be begun three generations before his birth, and Oliver Wendell Holmes's life testified that his ancestors had sufficiently appreciated that fact.

Educated in Cambridge schools, in Phillips Academy, and in Harvard University, he was graduated from the latter in the class of 1829. Subsequently he spent a year in the Dane Law School of his *alma mater*, but in 1830 he abandoned law for medicine and went abroad in 1833 for a two-years sojourn in the Paris hospitals. He took his medical degree at Harvard on his return, in 1835.

In 1838 he was elected professor of anatomy and physiology in Dartmouth College, a position he subsequently resigned to engage in the practice of his profession in Boston. In 1847 he was elected professor of anatomy in the Harvard Medical School, and he filled that chair until November 28, 1882, when he delivered his farewell address.

Dr. Holmes's professional reputation has been overshadowed by his literary successes, and when his name is mentioned it is oftener as that of the author of graceful verse or the master of sparkling, vigorous prose than as that of a physician who has rendered valuable service to his profession. Aside from the personal influence exercised upon Harvard medical students during his thirty-five active years as a professor, his critical and comprehensive observation was engaged in the

study of medical subjects. His investigations on Indigenous Intermittent Fever in New England gained one of the Boylston prizes in 1836, and in 1837 his essays on The Nature and Treatment of Neuralgia and on The Utility and Importance of Direct Exploration in Medical Science gained both the Boylston prizes. He edited in 1837, in association with Professor Jacob Bigelow, Marshall Hall's *Principles of the Theory and Practice of Medicine*.

His greatest work was his essay on The Contagiousness of Puerperal Fever, read before the Boston Society for Medical Improvement in 1842, of which he subsequently wrote: "When, by the permission of Providence, I held up to the professional public the damnable facts connected with the conveyance of poison from one young mother's chamber to another's—for doing which humble office I desire to be thankful that I have lived, though nothing else good should ever come out of my life—I had to bear the sneers of those whose position I had assailed, and, as I believe, have at last demolished, so that nothing but the ghosts of dead women stir among the ruins." This paper, reprinted in 1843 as a pamphlet, was republished in 1855 with the title *Puerperal Fever as a Private Pestilence*, and again in 1883 as one of the papers in his volume of *Medical Essays*. His essay on Homeopathy and its Kindred Delusions, published in 1842, is a trenchant and logical analysis of a pseudo-science.

He was a contributor to the *New England Quarterly Journal of Medicine and Surgery* and to the *Boston Medical and Surgical Journal* during the active years of his professional career. He was among the first members of the American Medical Association, and, while not a delegate to the Fourth National Sanitary Convention, he contributed to the social features of that meeting in his poem Hygeia.

Long before he relinquished his professorship he had given up general practice, and yet the literary work that made him famous was accomplished during daily periods of but three hours. With the increased leisure at his command, although in his seventy-third year, he devoted himself to literary work. He once said: "When I see the long row of volumes that bear my name, it appalls me to think of the number of shelves I should have filled had I been as diligent for a long series of years in literary labor as I was in acquiring and imparting scientific knowledge." Those that love his works will probably concede that, while he might have produced more books, and even books of equal merit, he could not have written better books than those that have been the admiration of two generations.

On the occasion of his eighty-fifth birthday he said: "After four score years the encroachments of time make themselves felt with rapidly increasing progress. The twelfth septennial period has always seemed to me one of the natural boundaries of life. One who has lived to complete his eighty-fourth year has had his full share even of an old man's allowance. Whatever is granted over that is a prodigal indulgence on the part of Nature. When one can no longer hear the lark, when he can no longer recognize the faces he passes in the street, when he has to watch his steps, when it becomes more and more diffi-

cult for him to recall names, he is reminded every moment that he must spare himself, for he is nearing the limit of his life."

Our bereavement is not merely national, but one that will be felt wherever the English language is spoken, for Holmes's genius was the common heritage of the English-speaking race. Walter Besant has voiced a general sentiment in saying: "At this moment I can not think of him as a writer to be classed or placed. I can only think of him as the man we all loved." *Frater, ave atque vale!*

MINOR PARAGRAPHS.

TULANE UNIVERSITY.

THE faculty of the Medical Department of Tulane University have elected Dr. Rudolph Matas, who has been demonstrator of anatomy in that institution since 1886, to fill the chair of surgery *vice* Dr. Albert B. Miles, deceased. Dr. Matas entered the university as a student in 1876, served two years as a resident student in Charity Hospital, and was graduated in 1880. During 1879 he was selected by the yellow fever commission of the National Board of Health as their clerk, and was engaged in investigating yellow fever in Havana. He was a medical inspector of the National Board of Health in 1881. He gradually gave increasing attention to surgery, and in 1886 was elected professor of clinical and operative surgery at the New Orleans Polyclinic. He was an associate editor of the *New Orleans Medical and Surgical Journal* for a number of years. He is to-day probably better known in the North than any other physician in New Orleans, his writings having displayed a thoroughness in research, a judicial deduction from facts, and an elegance in style that commended their author to the reader. He is now the president of the Louisiana State Medical Association. Professor Matas is of Spanish and French descent. He is a fluent linguist, French, Spanish, Italian, and English being equally familiar to his tongue. He is a man of magnetic personality, and his literary and artistic tastes have made him a chaste and elegant speaker. As an operator he has no superior in the South, and it is not too much to expect that the luster given to the chair of surgery in the university by the late Warren Stone will be surpassed by the more finished work of the present incumbent.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending October 9, 1894:

DISEASES.	Week ending Oct. 2.		Week ending Oct. 9.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	21	11	25	10
Scarlet fever.....	23	3	30	3
Cerebro-spinal meningitis...	1	0	0	0
Measles.....	15	2	17	3
Diphtheria.....	99	27	108	24
Small-pox.....	9	0	7	1
Tuberculosis.....	94	80	105	76

An Uncommon Source of Lead Poisoning.—A series of cases of lead poisoning in a family have been traced by Dr. H. Strauss, of Giessen, to the material used in stopping the millstones in which the flour for the bread of the household was

ground. The stopping contained a very large quantity of sugar of lead. Dr. Strauss states that a more extensive epidemic of lead poisoning at Chartres about thirty years ago was also traced to the use of a stopping for millstones which contained a large quantity of lead.—*British Medical Journal*.

Changes of Address.—Dr. Calvin Thayer Adams, to No. 21 East Twenty-eighth Street; Dr. Frederick Castle, to No. 51 West Fifty-eighth Street.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from September 30 to October 6, 1894:*

DAVIS, WILLIAM B., Captain and Assistant Surgeon, is granted leave of absence for two months and fifteen days, to take effect on being relieved from duty in the Department of Texas.

POLHEMUS, ADRIAN S., Captain and Assistant Surgeon, is granted leave of absence for one month, with permission to apply to the proper authority for an extension of fourteen days.

GIBSON, JOSEPH R., Lieutenant Colonel and Deputy Surgeon General. The extension of leave of absence on a surgeon's certificate of disability is further extended to six months on account of sickness.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending September 29, 1894:*

BLACKWOOD, N. J., Passed Assistant Surgeon. Detached from Naval Hospital, Norfolk, and ordered to the U. S. Receiving-ship Independence.

PARKER, J. B., Surgeon. Detached from the U. S. Receiving-ship Independence and ordered home and to wait orders.

ATLEE, L. W., Passed Assistant Surgeon. Detached from the U. S. Steamer *Pinta*, ordered home, and granted one month's leave.

WELLS, HOWARD, Surgeon. Detached from the U. S. Steamer *Detroit* and ordered to the U. S. Steamer *Montgomery*.

AMES, HOWARD E., Surgeon. Detached from the U. S. Steamer *Montgomery* and ordered to the U. S. Steamer *Detroit*.

WILSON, GEORGE B., Passed Assistant Surgeon. Detached from the Naval Hospital, Norfolk, and ordered to the U. S. Steamer *Castine*.

BROWNELL, C. D. W., Assistant Surgeon. Detached from the U. S. Receiving-ship *Vermont* and ordered to the Naval Proving Ground, Indian Head, Md.

STONE, L. H., Assistant Surgeon. Detached from Naval Proving Ground and ordered to the U. S. Receiving-ship *Vermont*.

Society Meetings for the Coming Week:

MONDAY, *October 15th*: New York Academy of Medicine (Section in Ophthalmology and Otology); New York County Medical Association; Hartford, Conn., Medical Society; Chicago Medical Society.

TUESDAY, *October 16th*: New York Academy of Medicine (Section in General Medicine); New York Obstetrical Society (private); Ogdensburgh, N. Y., Medical Association; Syracuse, N. Y., Academy of Medicine; Medical Societies of the Counties of Kings, St. Lawrence, (semi-annual), and Westchester (White Plains), N. Y.; Baltimore Academy of Medicine; Hunterdon, N. J., County Medical Society (Flemington).

WEDNESDAY, *October 17th*: Harlem Medical Association of the City of New York; Medico-legal Society, New York; Northwestern Medical and Surgical Society of New York (pri-

vate); New Jersey Academy of Medicine (Newark); Philadelphia County Medical Society.

THURSDAY, *October 18th*: New York Academy of Medicine; Brooklyn Surgical Society; New Bedford, Mass., Society for Medical Improvement (private).

FRIDAY, *October 19th*: New York Academy of Medicine (Section in Orthopædic Surgery); Baltimore Clinical Society; Chicago Gynæcological Society (annual).

SATURDAY, *October 20th*: Clinical Society of the New York Post-graduate Medical School and Hospital.

Letters to the Editor.

APOCYNUM CANNABINUM.

NEOLA, IOWA, *September 14, 1894.*

To the Editor of the New York Medical Journal:

SIR: Referring to an article which appeared in the *New York Medical Journal* for September 8, 1894—an abstract from the pen of Dr. J. Glinski on the action of *Apocynum cannabinum*—I believe I can claim priority so far as its administration for mitral and aortic lesions is concerned. For the last four or five years I have used it in ascites and general dropsy due unequivocally to cardiac lesion. In other words, I have given it a practical test and find it of inestimable value in just the conditions I shall illustrate with the detail of two typical cases that came under my care last spring. I will say further that apocynum acts better if combined with other agents such as the indications in each individual case suggest.

Mr. E. G., aged sixty-eight years, of sanguine temperament, of massive frame, and of powerful build muscularly, has sustained the reputation of being the strongest man in this section for many years. His weight at one time was two hundred and forty pounds. He is of German descent. He has always enjoyed uninterrupted health until about three years ago. While he was carting some potatoes to market one wheel of his vehicle broke down, and, being alone, he essayed to lift one part of the load while he endeavored to rectify the break. The consequence was, the prolonged muscular strain, compressing the arterioles, thus backing up blood into the heart, also the interrupted respiration which necessarily takes place in violent muscular effort, having some relation to the mitral lesion, resulted in both aortic and mitral insufficiency—the aortic lesion not so marked as the mitral. He came home at once. As I have said, this was over three years ago. I put him on the use of caffeine citrate, digitalis, and nitroglycerin—the latter ostensibly for its specific action on the aortic valves, digitalis for the mitral lesion and heart-wall strain, and caffeine for its well-known tonic action. The result was eminently satisfactory, as I expected, though he has never since then been able to perform labor entailing much muscular exertion. He was then assigned to police duty. During my absence in New York, a year and a half ago, complications arose, general anasarca developing. His lower limbs assumed prodigious proportions; besides, the scrotum became infiltrated with serum. Accompanying this were all the distressing symptoms characteristic of the condition that obtains in heart lesion. A physician in one of our neighboring cities succeeded in allaying his misery and materially bettering his condition. Upon my return I was sent for and found him an object for sympathy. He could not lie down—in fact, had not done so for many weeks—and procured snatches of sleep in the sitting posture and was in perpetual misery from dyspnoea, with all the other concomitants described. Not until I pre-

scribed this compound did he improve, and I used the Da Costa formula, Loomis's favorite prescription for this trouble, and other combinations, ineffectually.

R Strychnine sulph..... gr. ss.—gr. j;
Fl. ext. apocyni..... 3 ij—3 ss.;
Caffein. citrat..... 3 ss.;
Infus. digitalis..... q. s. ad 3 iv.

M. Sig.: A teaspoonful to a tablespoonful three times a day.

I diminished or increased the strychnine or apocynum as his condition required; I also gave him occasional doses of nitroglycerin, a one-tenth-of-one-per-cent. solution, one to three drops; but it should be used only as an intercurrent remedy; its continued use is dangerous. I did not hesitate to give him sulphate of morphine for rest. For three months he has had no signs of dropsy, eats and sleeps well, and thinks himself well, but can not account for his inability to exercise. A slow gait does not fatigue him. To keep himself comfortable, however, he takes a dose of the medicine every day or every second or third day. I have examined him from time to time and find the heart lesion still manifest, the pulse irregular in volume and intermittent.

And why do I know that apocynum constituted a valuable agent in his case? Because I tried the other remedies without it at first. I gave it on account of its diuretic properties chiefly, and found its action on the heart most salutary.

The other case was that of a woman, forty-two years of age, and the cardiac symptoms she presented were identical with those of the patient whose case is detailed above, the only difference being that which will occur in the sexes. In neither case were there evidences of kidney involvement. She was put on the use of the same prescription minus the nitroglycerin and containing one half the proportion of infusion of digitalis. The results were equally satisfactory. J. H. LOWREY, M. D.

THE OPERATIVE TREATMENT OF HERNIA.

MANCHESTER, ENGLAND, *September 24, 1894.*

To the Editor of the New York Medical Journal:

SIR: In the *New York Medical Journal* of the 8th inst. an article appears entitled A New Operation for Hernia, by Dr. A. M. Phelps. May I be allowed to point out that the second of his methods of dealing with the sac is practically identical with a method described by me in the *Lancet*, 1890, vol. i, pp. 1169, 1236, and previously in the *Illustrated Medical News*, November 30, 1889, vol. v, p. 194?

I inclose the drawings which illustrated both my papers at that time. E. STANMORE BISHOP, F. R. C. S.

Proceedings of Societies.

AMERICAN PÆDIATRIC SOCIETY.

Sixth Annual Meeting, held in Washington on Tuesday, Wednesday, Thursday, and Friday, May 29, 30, and 31, and June 1, 1894.

The Vice-president, Dr. F. FORCHHEIMER, of Cincinnati, in the Chair.

(Continued from page 152.)

The Ætiology, Prevention, and Treatment of Rickets.—

As a part of the discussion on this subject Dr. IRVING M. SNOW, of Buffalo, read a paper on the Influence of Race, especially

the Italian Race. He said that in the community in which he practiced rickets was six times as prevalent among the Italians as among the other classes, and that the disease prevailed only moderately among the children of English, German, Irish, and Poles. He attributed this to the great change of environment which the Italian race had experienced in coming from the warm climate of Italy, where they lived out of doors in the sunshine a greater part of the time, to the harsh climate of Buffalo. The change for them had been too sudden and severe. The average winter temperature of Buffalo was 27°-15°, while that of Naples was 58°. Rickets certainly was comparatively rare among the natives of southern Italy, Egypt, and India, and this fact was apparently accounted for by their out-of-door life and the bright warm sunshine of these localities. Man had certainly greater powers of adaptation than the lower animals or plants, but still the result of emigration to a different climate, even under hygienic laws, was usually suffering and increase of infant mortality. Migration should be conducted slowly, step by step. The speaker quoted from a recent article on the effect of light on the human organism. In this quotation it was shown that the withholding of light produced serious and far-reaching effects, among which was the growth of cartilage instead of the formation of true bone.

Dr. GEORGE N. ACKER, of Washington, D. C., read a paper in which, after referring to the many peculiarities of the negro race, he said that since the war the conditions affecting the negro had entirely changed. Formerly the slaves had been well fed and clad, and they had lived in wholesome houses and had been well cared for when sick; now they had to work and shift for themselves, and being often intemperate and lazy, they were accustomed to live with a total disregard of all sanitary rules. This had necessarily exerted a very deleterious effect upon their offspring, and as a result the race was undergoing serious and rapid decay. Predisposition to rickets in the colored race would seem to be an acquired one, for the native Africans, it was said, seldom showed any evidence of this disease. In the negro the bone lesions of rickets were often late in appearing, and might very easily be overlooked. Heredity was a most important aetiological factor. The parents were, as a rule, tubercular and syphilitic. His experience tended to prove that it was common for children with a tubercular or syphilitic diathesis to have rickets severely. As the negro infants were usually brought up in ill-ventilated houses, their assimilative functions became impaired. If breast fed, most of the mothers being in service, their infants were not nursed regularly, and were often given improper food in addition. Besides this, the negro infant was weaned at an early age. Between the sixth and eighteenth months of life pulmonary disorders were very common, and this was the time when rickets were most frequently observed. Disease of the respiratory organs lowered vitality, and in this way it might be considered an aetiological factor in the production of rickets. The pathological changes found in rickets were about the same in negroes as in other races. The wrist joints were apt to be more than usually prominent in rickety negroes; the swelling and "beading" of the ribs were more early and constant; the thoracic grooving was always very well marked. The head of the rickety negro child was usually rectangular, but this was not always the case. In some cases the fontanelles were closed early and the skull firmly ossified. Although he had carefully searched for craniotabes, he had been led to think that it was quite rare among negroes. As negroes had less sensibility than the whites, they were not, as a rule, so subject to nervous affections in connection with rickets. Rickety infants among the negroes were very prone to bronchial catarrh and bronchopneumonia, and tuberculosis was often a grave and very fatal

complication. When such children were placed under more favorable hygienic surroundings the disease usually yielded quite readily to treatment.

A Case of Congenital Rickets.—Dr. C. W. TOWNSEND, of Boston, continued the discussion by reporting the case of a child who had been seen by him at the Boston Lying-in Hospital, and had been born of healthy parents who had no syphilitic history. They had had one child previously, and although it had arrived at the age of three years it had so far developed no evidence of rickets. The parents had been wretchedly poor, and the child had been prematurely born and had weighed only seven pounds at birth. The head had been sixteen inches in circumference; the sutures had been widely open; there had been a large area of cranial tabes, and there had been Wormian bones. There had also been considerable cyanosis, which might have been partially due to an open ductus arteriosus; there had been no murmur heard over the heart; there had been the characteristic rickety rosary; the abdomen had been large; the spleen could not be felt; the extremities had shown evidences of rickets, the enlargement of the epiphyses being distinctly noticeable. The bones of the forearms had been bent posteriorly; the femur had been curved outward and forward. These curvatures could only be explained by considering them the result of muscular action on the soft bones *in utero*. There had also been fractures due to the extreme brittleness of the bones, a late phase in the rickety process, and therefore they must have been produced by muscular action within the uterus. The child had been artificially fed, and it had died on the ninth day. There had been no autopsy.

Dr. J. P. CROZER GRIFFITH, of Philadelphia, remarked that he had not been able to observe any difference in the causation of rickets among the colored and white races. He thought it was reasonable to suppose, at least, that the colored children of Philadelphia had become acclimated by this time.

Dr. L. EMMETT HOLT, of New York, said that the severest cases of rickets he had seen in New York had occurred among the negroes and Italians. The causes of rickets were many and far reaching. There could hardly be any question as to the predisposition of these two races to rickets, and his experience had led him to about the same conclusions as those reached by Dr. SNOW.

Dr. J. HENRY FRUITNIGHT, of New York, stated that in his experience the largest number of rickety children had been seen among the Italians; the next largest among the Teutonic people; the next largest among the Slavonic races, more among the Bohemians than among the Russians; the next largest number among the Celtic races, none among the Scotch, and very rarely among the Irish. It seemed that the nations of continental Europe were more prone to the disease than the inhabitants of the British Islands. Dr. Fruitnight then reported in brief a case of congenital rickets which he had seen in New York, thus making the number of recorded cases in this country four up to the present time.

Dr. A. SEIBERT, of New York, called attention to the fact that in by far the majority of cases of rickets that he had seen he had found craniotabes present since he had made it a practice to look for this condition. He said that it was especially likely to occur in cases with a history of eclampsia.

Dr. SAMUEL S. ADAMS, of Washington, said that he agreed with the author of the paper that rickets was due chiefly to improper food.

Dr. JOSEPH E. WINTERS, of New York, said that, although climate had its influence in producing rickets, it was not climatic directly, but its influence on assimilation and digestion, that produced the disease. In spite of climatic changes, all these cases of rickets which had been mentioned could be cured by

the use of proper food. Dr. Acker had stated that tuberculosis and rickets were associated conditions; but he had yet to see a tuberculous child become rickety, and he thought that if a child suffering from tuberculosis was subjected to the conditions favorable to the production of rickets, the child would die before the rickets was fully developed.

Dr. KOPLIK, of New York, speaking of the value of medication in the treatment of rickets, said that phosphorus, when given for this disease, should be administered in the nascent form, dissolved in sweet almond oil in a capsule rubbed up in a sufficient quantity of cod-liver oil. One one hundred and twentieth of a grain of phosphorus should be the daily dose, and it was important that it should be given along with cod-liver oil. He thought that if this method of treatment was conscientiously and persistently carried out, the result would be found to be quite encouraging.

Dr. ACKER said that he believed that if the negro was placed under proper hygienic surroundings the disease could be cured without the use of drugs. In the Children's Hospital in Washington they had found benefit from giving a phosphatic emulsion of cod-liver oil which consisted essentially of the yolk of egg combined with cod-liver oil, New England rum, and glycerin, with oil of bitter almonds and orange water as flavoring agents.

An Aid to the Sterilization of Milk in Artificial Infant Feeding.—Dr. A. SEIBERT, of New York, read a paper the object of which was to call attention to a method of cleansing milk before sterilization, to enable every one to remove the gross filth from the milk and thus diminish the number of bacteria very markedly before the process of sterilization was resorted to. The author said that he had made a number of experiments the result of which showed that seven eighths of the bacteria could be removed from a given bulk of milk by filtering the milk through absorbent cotton. Experiment had shown that this process of filtration did not affect in any way the amount of cream or the specific gravity of the milk or diminish the quantity of sugar. Dr. Otto Killiani, of New York, had assisted him by making control bacteriological experiments. These experiments had shown beyond a doubt that by filtering the milk through a half-inch layer of compressed absorbent cotton the germinating capacity of the milk could be reduced considerably, and that this could be still further increased by filtering the milk through cotton which had previously been moistened. By this process Dr. Killiani had been able to reduce the bacteria to a twentieth of their original number. A quart of milk could be filtered in from twelve to fifteen minutes, and all the apparatus necessary for the purpose was an ordinary funnel in the bottom of which absorbent cotton was packed.

Dr. KILIANI confirmed the statements thus made, and stated as a proof of the care with which he had conducted the bacteriological experiments, that out of nineteen such experiments not a single culture had been obtained as a result of infection from the hands or from the air.

Dr. SEIBERT remarked that he did not wish this method to be considered as being offered as a substitute for sterilization of milk; on the contrary, the sterilization of milk should be more than ever resorted to because of the easy methods now at our disposal for cleansing the milk previous to sterilizing.

Infantile Scurvy, especially its Diagnosis.—Dr. J. HENRY FRUINIGHT, of New York, read a paper in which he said that since the publication of the writings of Barlow and Northrup and others, infantile scurvy had been much more frequently diagnosticated and reported than before. As scurvy was the result of faulty nutrition, it could safely be assumed that more cases were now encountered than when breast feeding was more general. He then cited a typical case of

scurvy: E. P., born January 9, 1892, had been very puny at birth, and had had very small and ill-developed bones. The mother had been under treatment for more than a year for pulmonary tuberculosis and had improved somewhat under change of climate. This child had given no evidence of phthisis. The attending physician had advised early weaning of the infant. The child had been kept at the breast for two weeks, and then had been partly nursed and partly fed on Mellin's food. Soon, however, it had been fed entirely on artificial food. It had not thrived well, and after consultation with a physician it had been decided to employ sterilized milk. The child had improved somewhat under this change of diet, but had not gained flesh and weight and had appeared to be hungry all the time. The sterilized milk had been continued until the child was six months old, when the Mellin's food had again been employed. In February, 1893, the mother had noticed that the child would shrink when put into its daily bath which she had formerly enjoyed. A few days later it had been noticed that the child did not like to have the left ankle joint moved. A swelling had appeared on the leg shortly after this and had increased rapidly in size. The gums had soon begun to smell offensively and assume a dark hue. The pain and swelling of the legs had continued to grow worse, and in May the gums had bled when touched. The child had been thought to have some joint disease, and the attending physician had diagnosticated acute articular rheumatism and had employed treatment for this condition. When the speaker had first seen the patient in May, 1893, it had been in a deplorable condition. There had been a fusiform swelling of the left ankle and of the left thigh, and these swellings had been very painful; the temperature 103°, the pulse feeble and very rapid; the gums of a dusky, purple color; the tongue and cheeks ulcerated. The whole mouth had also been inflamed and had emitted a very foetid odor. The slightest touch had been sufficient to induce bleeding of the gums. There had been petechial spots over the back and limbs. The right eye had been closed by the large amount of ecchymosis present; the conjunctiva had been involved in this effusion, and the swelling had extended far down on the cheek. There had been considerable blood in the stools, but the child had not had diarrhoea. There had been a condition of marked anæmia present. It had been evident from this description that the prognosis was not very encouraging, but after treatment had been carried on six or seven weeks the child had recovered and had since been healthy. The first step in treatment had been to change the food to Pasteurized milk, and to give orange juice in drachm doses every two hours, along with a grain and a half of the citrate of iron and ammonium every four hours. Antiseptic and astringent mouth washes had also been employed. The first sign of improvement had been observed in the leg; then the mouth and gums had begun to improve, and the hæmorrhagic spots had been the last to disappear.

The author said he believed that the condition of malnutrition present in scorbutus could not but exert a special influence on the blood-vessels. The most important cases of scurvy on record in children had not shown evidence of rickets, although the disease was formerly diagnosticated as "acute rickets." He thought that it was altogether too sweeping to look upon all hæmorrhagic diseases as examples of scurvy. It was also an error to suppose that scurvy never occurred in breast-fed children. The chief points on which the diagnosis was based were the swelling and tenderness of the ends of the femur, the swelling and spongy condition of the gums, and the rapid and complete cure following the institution of antiscorbutic treatment. Scurvy might be mistaken for acute rheumatism, but in scurvy the joints were white and tense instead of being puffy as in

rheumatism, and in the latter disease the joints were red and the tenderness was localized in certain spots. In scurvy there was no local elevation of temperature, whereas in rheumatism the local temperature was increased. Where the joint symptoms were not well marked, of course it was often difficult to make a diagnosis, and it might also become necessary to resort to the therapeutic test in order to decide the question. It had been objected by some that this would expose the patient to the dangers of an endocarditis by delaying the institution of the proper treatment for rheumatism, but he thought that if the symptoms did not quickly disappear or abate under the use of antiscorbutic treatment, this was sufficient reason for at once resorting to the appropriate remedies for rheumatism. The pseudo-paralyses found in connection with infantile scurvy were required to be distinguished from other infantile paralyses. They could only occur from bone lesions in scurvy, and these should therefore be searched for. Scurvy might be looked upon as the result of a faulty nutrition leading to the deviation of the normal constitution of the blood, probably as a result of a deficient alkalinity. The various affections characterized by lesions of the mouth should not be difficult to diagnosticate. The bone and joint symptoms in scurvy must always precede the mouth symptoms. Scurvy also required to be distinguished from purpura. Particular attention should be paid in this connection to the clinical development of the case.

In conclusion, the author said that the three important symptoms were the bone lesions, the spongy condition of the gums, and the petechiæ. The symptoms appeared first in the lower extremities, then in the gums, and lastly the hæmorrhagic extravasations developed. Under proper dietetic treatment scurvy generally ran a favorable course.

The Nutritional Element in the Causation of Neuroses.

—Dr. W. S. CHRISTOPHER, of Chicago, read a paper thus entitled. The author said that in the production of neuroses the following positive ætiological factors were present: (1) Heredity; (2) Anæmia; (3) Some local condition acting reflexly as the immediate exciting cause. He said that there were many changes in the blood affecting its nutritive value which we could not determine clinically. The estimation of the quantity of hæmoglobin and the number of corpuscles were the only examination which were possible clinically, and these did not give very satisfactory evidence of the nutritive elements present in the blood. The changes occurring in the blood were directly dependent upon the chemical composition of the tissues and upon the environment of the tissues. The chemical composition of a tissue depended directly upon the nutritive supply, and indirectly upon the trophic influences governing it. He would define a neurosis as a group of phenomena resulting from such abnormal action of tissues as might be dependent upon one or more of the following conditions: (1) Abnormal chemical construction of the tissues; (2) abnormal chemical composition of the nutritive element supplying the tissues; and (3) derangement of the nerves. Each individual required not only a certain bulk of food, but also a certain variety in his diet to meet the various chemical requirements of the organism. The proteids, carbohydrates, and fats did not supply the needs of the system completely. Aside from salts and water there are other things present which probably acted as food. The nutritional antiscorbutic element, for instance, had as yet escaped detection by the chemist. We knew, however, that it was needed in comparatively small quantity and that it might be withheld for a considerable time from the organism without detriment to the general health, and that the deficiency might be made up after it had been absent for some time. If the food were sufficient in kind but insufficient in quantity, the result would be complete starvation. Incomplete or partial

starvation occurred when the food was deficient in variety. It was obvious that complete and incomplete starvation might occur in a given individual at the same time. These varieties of starvation were, moreover, largely relative. The idiosyncrasies of individuals had some influence. For example, one child with a certain amount of fat in its food would show distinct evidences of fat starvation, while another with the same amount of fat in its food would give no such evidence of any abnormal condition of the system. Partial starvation was important in the production of neuroses. It was more noticeable in infants than in adults. Neuroses from incomplete food supply might be termed physiological nutrition neuroses, in contradistinction to those which resulted from a perversion of nutrition as a result of the presence of toxic substances in the body. This latter condition might well be termed pathological nutrition neuroses. The commonest form of partial starvation in infancy was fat starvation, and this was not to be wondered at when it was remembered that the infant required three times as much fat as the adult. In view of the large use of commercial infant foods it was also surprising that so many infants escaped the result of fat starvation. Fat starvation was the commonest cause of rickets—a condition which could be cured by making up the fat deficiency in the diet. Proteid starvation was much less common. Rickety children were much more liable to neuroses—for example, sweating about the head; excessive sweating, the speaker thought, was often due to fat starvation. The partial starvation resulting in scurvy, the speaker said, was not infrequently met with. Many badly nourished children could not be classified as rickety or scorbutic, but they nevertheless presented some evidences of starvation. Our knowledge of the finer points of nutrition was sadly incomplete. There were, no doubt, such conditions as calcium starvation, potassium starvation, chlorine starvation, etc., and each probably had its peculiar symptoms and neuroses which as yet were unrecognized by us. In the causation of changes in the tissues there were other factors besides interference with the food supply—*e. g.*, abnormal nerve impulses, direct toxic action, and pathological conditions affecting the organism, such as syphilis and other infectious diseases. Referring to the question of heredity, the speaker said that when racial atomism took the chemical line, the tissues and organs were formed with more or less of the functions characteristic of the type indicated, but other organs did not follow this type, and hence there was a clashing of function. The most striking example of this was lithæmia. In conclusion he would say that abnormal chemical structure of the tissues was responsible for the production of neuroses, and that such abnormal structure might result from (1) heredity; (2) deficient constructive metabolism, resulting perhaps from insufficient food supply; and (3) deficient destructive metabolism.

Dr. ROTCH, of Boston, agreed with the author in his views regarding fat starvation. He called attention to the fact that infants varied greatly in their individual requirement as to the quantity of fat necessary to keep up the standard of health of the organism.

(To be continued.)

AMERICAN ORTHOPÆDIC ASSOCIATION.

Eighth Annual Meeting, held in Washington, D. C., on Tuesday, Wednesday, and Thursday, May 29, 30, and 31, 1894.

The President, Dr. A. M. PHELPS, of New York, in the Chair.

(Continued from page 411.)

The Operative Treatment of Rhachitic Deformities.—

Dr. DE FOREST WILLARD, of Philadelphia, read a paper in

which he said that in the carrying out of the manual correction of such deformities it was necessary that the pressure should be made only momentarily, and that it should be directed intelligently. He had never seen sloughing occur as a result of pressure. Ordinarily straightening would occur before fracture, but sometimes there would be a "green-stick" fracture. There was but little pain connected with this method of treatment. He had often found that the straightening was more pleasantly and more efficiently accomplished by forcible means, even in children five or six years of age, than by the use of osteoclasis. Osteotomy he looked upon as the operation *par excellence* for the correction of rhachitic deformity. Suppuration had occasionally followed the performance of cuneiform osteotomy, but in other forms of osteotomy it had been the rarest of all accidents in his practice, primary union being the rule. He spoke of the importance of not using an Esmarch bandage, because when there was a free flow of blood there was less likelihood of an inflow of air, and consequently of the occurrence of sepsis. While it was true that a slight mortality still attended osteotomy, he felt that most of the statistics upon which opinions as to the mortality of osteotomy were based had been obtained some years ago, and consequently did not apply to the present time. He was very anxious to learn the statistics of the last few years, for he had personally observed no deaths and had heard of none among his medical friends. He did not believe that a bone could be fractured with an osteoclast until all the soft tissues had been compressed and lacerated down to the periosteum, and therefore he looked upon osteotomy as a better operation than osteoclasis.

Dr. WEIGEL said that with ordinary care and proper after-treatment he thought either linear or cuneiform osteotomy was perfectly safe, and to his mind preferable to osteoclasis. He had entirely discarded drainage in his practice, and he would like to know whether Dr. Willard still continued to use it.

Dr. RYAN, of Cincinnati, said that the chief difference between osteoclasis and osteotomy seemed to be the difference between precision and uncertainty. He thought that cuneiform osteotomy had been generally abandoned, except for cases of anterior curvature of the tibia. If osteotomy was performed on these subjects before the age of four or five years, the deformity would in all probability recur.

Dr. A. J. GILLETTE said that he had never resorted to osteoclasis, because he had always been impressed with its lack of precision. He then detailed his experience with a case of osteotomy in which, notwithstanding persistent effort, he had been unable to obtain proper union. He could not assign any cause for this accident.

Dr. COOK said that he had always made it a practice to seal the wound after an osteotomy, and he had never seen a drop of pus in these cases.

Dr. BARTOW, of Buffalo, said that he did not think the fear of injuring the soft parts by osteoclasis was well founded. One could often produce a "green-stick" fracture with the osteoclast, and then not only reduce the deformity, but obtain the benefit resulting from a partial fixation offered by the bone itself, as the bone had not been completely divided.

Dr. W. R. TOWNSEND, of New York, said that he had seen one case in which Dr. Grattan himself had produced a laceration of the soft parts by using his osteoclast. As he had taken no special antiseptic precautions in the preparation of the operating field for osteoclasis, it was natural to suppose that even such slight lacerations might afford an entrance for germs. In this particular case, however, no disastrous results followed the laceration.

Dr. COOLIDGE said that Lorenz had effectually obviated this difficulty by pads of very thick rubber on his instrument.

Dr. BARTOW said that he had avoided producing such lacerations by simply applying a piece of moleskin plaster at a point where the pads or girdles of his Rizzoli instrument were to make pressure.

Dr. KETCH said that he did not think any one of these patients with rhachitis recovered without deformity, unless at least some simple manipulation had been carried out. He would like very much to hear from the others regarding the so-called "growing-out" theory.

Dr. RYAN replied by stating that he had had under observation a family of four boys, all of whom had had marked rhachitic deformities, and all of whom had outgrown the deformities without the slightest use of any form of manipulation or manual correction.

Dr. WILLARD said that he did not often performed cuneiform osteotomy at the present time, but when he did so he left the wound open. He felt that when there was a very free effusion of blood the callus was likely to be deficient, and this might explain the cause of non-union in the case reported by Dr. Gillette. Bad results after osteotomy were often due to faulty application of dressings by inexperienced assistants. He thought that the most common mistake after osteotomy was in allowing the patients to go around without proper mechanical support. Some such form of support should be worn by the patient for at least a year after an osteotomy.

Relief of the Spondylitic Spine from the Concussion of Walking.—Dr. J. C. SCHAPPS, of Brooklyn, read a paper thus entitled. He said that in order to reduce to a minimum the concussion of walking, he had been in the habit of placing thick rubber heels on the braces worn by his patients. He had adopted this practice for the past two years, using rubber heels half an inch thick. These should not be nailed on, but should be stitched to the shoe.

Elastic Traction in the Immediate Treatment of Club-foot.—Dr. BERNARD BARTOW then read a paper on this subject. In his method of applying elastic traction he followed very closely that described by Mr. Barwell. His object was to supplement tenotomy by grasping the anterior aspect of the foot and abducting and twisting it into its normal position. Over-correction was secured by elastic bands attached by adhesive plaster at the base of the little toe, and by means of a second plaster strap attached at the knee near the outer margin of the patella. The varus element yielded particularly well under this method of treatment.

Dr. NEWTON M. SHAFFER, of New York, said that he had found intermittent traction as a general procedure extremely valuable, and he had also noted in many cases with great satisfaction the beneficial influence which it exerted on the nutrition of the parts.

Phelps's Method for the Cure of Clubfoot in Adults.—Dr. W. E. WIER, of Cleveland, read a paper in which he reported three cases, the patients being respectively ten, nineteen, and twelve years old, in which he had performed Phelps's operation. He believed that tenotomy, the open incision, and the removal of a wedge from the tarsus, and sometimes also the removal of the astragalus, would result in securing a useful foot in almost every case. The skin of adults and some older children would not, however, stand a severe straining force without sloughing.

Dr. WEIGEL then reported a case of double clubfoot and double clubhand, in which there had been an extreme degree of deformity. Continuing the discussion, he said that in a girl of

twelve years he had done Phelps's operation on one foot, and had removed the astragalus from the other foot. The latter method had given a much better result. The great defect with Phelps's operation was that it was almost impossible to secure a complete correction of the varus.

Dr. TOWNSEND said that the secret of Dr. Phelps's success in these severe cases was not in the open incision, but in the fact that he employed a tremendous force. The limitations of the operation were greater than had been supposed, for it was not an operation which was indicated in very mild cases and where there was much retraction of the soft parts with extreme bony deformity, for in these latter cases it was sure to fail.

Dr. KETCH said that in cases in which the bony distortion exceeded the contraction of the soft parts Phelps's operation was a failure.

Dr. COOLIDGE, on behalf of Dr. Halsted Myers, of New York, described a new method of operating in these cases of club-foot. He said that when it was necessary to remove one of the bones of the foot Dr. Myers advised making a small incision over the bone and scooping out all the spongy tissue in the interior of the bone with a Volkmann spoon. After this had been done, comparatively little force was necessary to restore the foot to its natural position.

The Discussion on Flat-foot was then resumed.

Dr. SHAFFER spoke of the mechanism of its production, and illustrated his remarks by a simple mechanical model. He said that there was practically no motion at the foot, and that the center of motion at the ankle joint passed transversely through the astragalus at about the external malleolus. The motion of the ankle joint occurred on a remote axis. Referring to the model, one would see that when the gastrocnemius muscle was shortened there would be a flattening of the plantar arch, and that if these tissues were weakened in any way the arch would yield. The calcaneus variety of clubfoot was exactly the result of flat-foot. In order that a flat foot should be produced, the motion must be blocked at or near a right angle.

Dr. F. L. McCURDY, of Dennison, Col., said that he had made some experiments in regard to the motion of the ankle joint, and had found that for graceful walking it was not necessary that there should be any motion at the ankle joint.

Dr. WIRT maintained that the model exhibited by Dr. Shaffer was defective in that it represented a person as walking with the foot perfectly flat.

Dr. KETCH said that he could not agree with Dr. Wirt that each time the body advanced the heel was raised to such an extent as to cause contraction of the gastrocnemius muscle.

Dr. BARTOW said he had always thought the flattening of the arch of the foot preceded the shortening of the muscle.

Dr. HENRY LING TAYLOR, of New York, said that flat-foot was a disease due to relaxation, and that the shortening of the muscles was consequent upon position.

Excision of the Knee Joint.—Dr. F. L. McCURDY then described a new method of excising the knee joint by means of which injury to the tendinous and muscular structures composing the hamstrings could be avoided. In order to do this he made use of a peculiar method of sawing the bone, guided by a special form of retractor.

Fixation and Traction in the Treatment of Fracture into Joints.—Dr. ANSEL G. COOK, of Hartford, read a paper on this subject. He said that from an examination of its literature he had been led to conclude that early passive motion only served to disarrange the fragments of bone, increase the production of callus, irritate the injured ligament, and by increasing the inflammation tend to produce ankylosis. Immobilization was useful only during the active stage of inflammation, or until

the broken ligaments and bones had become united; hence, immobilization in a case of fracture into a joint should be maintained for from three to eight weeks, and should then give place to massage.

Dr. RYAN said that it was his practice in cases of fracture into the ankle joint to begin daily passive motion about the sixteenth day after the injury.

Dr. E. G. BRACKETT, of Boston, said that he had frequently had cases brought to him in which the motion had been actually diminished by a too early and too vigorous resort to passive motion, and that under such circumstances by resting the part in splints he had speedily increased the degree of motion.

Tuberculous Disease of the Shoulder Joint.—Dr. W. R. TOWNSEND, of New York, next read a paper on this subject. (See page 357.)

Dr. KETCH said he saw no more reason for operating on tubercular disease of the shoulder in children than on tubercular disease of other joints.

Dr. SHAFFER said that he had treated these cases with a simple extension brace and had obtained very satisfactory results, so that he saw no reason, in most instances, for resorting to operative measures.

Dr. RYAN said that he had found no occasion for operating in these cases any more than on other joints affected with tubercular disease. His experience with mechanical treatment had certainly been favorable in this class of cases.

Dr. JOHN RIDLON, of Chicago, said that he had found mechanical treatment satisfactory, but he had not obtained such good results with Dr. Shaffer's traction brace as Dr. Shaffer himself had. The treatment he employed consisted in fastening the arm to the body, supporting the hand with a halter, and applying adhesive straps so as to still further immobilize the shoulder.

Infantile Scrophulous.—Dr. HENRY LING TAYLOR, of New York, then read a paper on this subject. Infantile scurvy, he said, due to imperfect feeding, had lately attracted considerable attention, over seventy cases having been reported at a recent discussion of the subject at the New York Academy of Medicine. This disease was insidious in its onset, and unless recognized might prove fatal. The symptoms, some of which might be absent in any particular case, were a dusky pallor, emaciation, peevishness, and general sensitiveness—often excessive; an exquisite tender swelling without local heat, situated near the joints of the lower extremities, due to hæmorrhage; inability to move the lower extremities and trunk (pseudo-paralysis); spongy or bleeding gums near the teeth, and, most significant of all, rapid improvement and cure on a diet of fresh milk and orange juice. The circumarticular swellings had frequently been mistaken for rheumatism, which might the more readily happen as fever might be associated with it. A baby a year old had been sent to the writer from the South for treatment for a supposed spinal or hip affection. This baby had been fed on condensed milk and presented a spinal projection at the upper lumbar region with rigidity, in addition to the usual symptoms. The cachexia, the spongy and bleeding gums, the powerlessness of the legs, the exquisite sensitiveness, and the existence of a swelling on the right ankle, made the diagnosis clear. All the symptoms disappeared inside of three weeks on the use of Pasteurized milk and orange juice. As other cases had been mistaken for hip disease, osteitis of the knee, sarcoma of the knee, and infantile paralysis, it was particularly needful for orthopædists to bear in mind the possibility of scurvy when distinguishing infantile joint and paralytic affections.

Dr. JOHN RIDLON, of Chicago, was elected president of the association for the ensuing year.

Miscellany.

The Extraction of Teeth.—The *Annales de la polyclinique* for September publishes a report of a clinical lecture by M. Dutour, in which, after remarking that the extraction of teeth belonged to the operations of minor surgery, he said that the wound left after the extraction should be treated like others, by antiseptic means and with greater care if possible, because of the innumerable microbes living in the mouth. The teeth were very firmly implanted in the sockets of the maxillary arch, and the adhesion was very great between the alveolar cavity and the root of the tooth, so that it was sometimes difficult to extract a tooth even with a single root, although it might be moved by the finger. The teeth were firmly fixed in the mouth by the alveolo-dental periosteum, a sort of ligament which attached the root to the socket, and by the gum, which clasped and solidly closed around the neck of the tooth. These uniting tissues were very resistant, and they must be shattered in order to extract the tooth.

Under these conditions the instrument to be used should be able to grasp the largest possible surface of the tooth, and to overcome the majority of the obstacles opposed to its extraction, also to diminish the power of resistance by grasping the tooth as near the extremity of the root as was possible. The instrument that best fulfilled these conditions was the forceps, and it was generally adopted at the present time. It should be properly formed as to curvature and size, to the form even of the tooth. There were numerous varieties of the forceps, and they were all made on the same principle, differing only in the details of construction. In order to understand why this special form was given to the bits of each forceps, said M. Dutour, a few words on the anatomy of the roots of the teeth would be useful. Certain teeth, the incisors and the canine, had only one root. This root, nearly cylindrical in the incisors and in the upper and lower canines, on the contrary, was flat in the lower incisors. The roots of the bicuspid were single with a deep groove, or forked at the top of the groove, or completely double. The roots of the lower bicuspid were always round, and those of the upper ones flat. The large upper molars had three roots; two external or labial, the strongest of which was anterior or median, and one internal or palatine, which was stronger still than the others. But, while the roots of the first molars were very much separated, forming a tripod at the base, they tended to draw closer together in the second molars, and were often united in a bunch in the wisdom teeth. The large lower molars had only two roots, one anterior and very strong, the other posterior. Each root was, however, deeply grooved, and they were curved behind and depressed in the center. In the upper molars, the roots, which were very divergent in the first, closer in the second, and sometimes united in the third, were not more detached than their extremities, which were more or less separated. These considerations, said M. Dutour, should guide the dentist in the selection of his instruments.

With regard to the extraction of the teeth, the first thing to be considered was the application of the instrument. The forceps should be placed carefully on the neck of the tooth, and then, without tightening the instrument, it should be slipped as high as possible under the gum; in this way a large part of the adhesions was destroyed, and there was less danger of fracture than when the extremity of the root was grasped. The first step was the most important; on its methodical accomplishment depended greatly the success of the operation. The next consideration was the dislocation of the tooth, which should be done by gentle movements in the beginning, thus lessening the

chances of fracture. Whatever adhesions still remained were in this way destroyed, and nothing remained but to extract the tooth, which should be effected without violence or haste; otherwise there was danger of striking and fracturing the other teeth.

When hæmorrhage was produced, the mouth must be washed, not only with aromatic water, but with an antiseptic solution of sodium borate, thymol, carbolic acid, or the like. Afterward the wound should be gently probed in order to see if there were any small pieces of bone left which might prevent cicatrization. For several days the mouth should be washed with one of the solutions mentioned, or with a one-per-cent. solution of chloral, which had the double advantage of being antiseptic and quieting the pain, which was sometimes very sharp after the extraction of a tooth.

These, said M. Dutour, were the general principles which might be applied to the extraction of teeth.

Rickets as an Infectious Disease.—In the *Nouveau Montpellier médical* for September 14th M. P. Puech publishes an article in which he remarks that, in a recent pamphlet, M. Chaumier, of Tours, endeavored to prove that rhachitis was a "specific disease produced by an unknown microbe."

In the first place, says M. Puech, it must be observed that the theories propounded up to the present time in regard to rhachitis are hardly convincing. Parrot's syphilitic theory, established on anatomico-pathological resemblance, is not tenable. Malnutrition leads much more to athrepsia and to marasmus than to rhachitis; moreover, the bones of children who succumb do not offer any characteristic lesions of the latter.

The theory which attributes rhachitis to the dissolution of the calcareous salts of the bones by the lactic acid formed in the stomach in large quantities when diarrhœa and digestive troubles exist has never been proved; if it was true, all dyspeptics would become rhachitic.

To attribute rhachitis to a defect of assimilation of the phosphate of calcium, under the influence of digestive troubles, is to forget that there are rhachitics who digest their food well and have always done so. Again, why do not all children with digestive troubles absorb phosphate of calcium equally well, since all are not similarly affected?

The nervous theory is no more acceptable. Certain troubles observed among rhachitics are oftener manifestations of hysteria than of rhachitis.

Like many infectious diseases, rhachitis is a disease of regular stages; it runs through its three periods—the rise, the crisis, and the recovery—with so great a regularity that all treatments practiced up to the present day do not seem in any way to counteract it.

Rhachitis is also a contagious disease. M. Chaumier had often seen all or nearly all the children in the same family attacked with the disease. In asylums and in places where a number of people live together one may nearly always find a large number of rhachitics. One may expect, then, to see an epidemic condition arise. Baginsky, Henoch, Bonadel, and M. Chaumier himself have noted that in certain years the number of rhachitics was larger. The observation of animals confirms the remarks made here in regard to human beings. During the course of the last year a true epidemic broke out among young pigs in a part of the department of the Indre-et-Loire. The histological examination of the bones of two pigs that had survived the attack had shown the existence of the characteristic changes of the disease. From all this, asks M. Puech, is it right to conclude that rhachitis is "infectious, parasitic, a specific disease, the microbe of which produces only rhachitis, as the microbe of measles produces only measles?"

In the meantime we must conclude with M. Fédé, of Naples, that, since we do not know the pathogeny of rachitis, one may as well hold the microbial theory as any of the others.

The Grain Weight.—The *American Journal of Pharmacy* for October publishes an interesting article by Mr. J. U. Lloyd on this subject. Concerning the origin of the grain weight, the author quotes from C. W. Pasley, *Measures, Weights, and Money*, 1834, as follows: "In the days of feudal ignorance the standard of English linear measure was referred to the average length of a barleycorn, and the standard of weight to the average weight of a dry grain of wheat from the middle of the ear." This, says the author, might lead us to infer that our present grain weight represented the weight of an average grain of wheat at the time when the standard was established. But careful weighing of good samples of wheat has convinced Mr. Lloyd that such an inference would be erroneous, and that modern grains of wheat do not average a grain in weight. It is exceptional for an abnormally large wheat grain to weigh a grain. After studying the subject further he arrived at the fact that, while the grain weight actually represented the weight of average grains of wheat about six hundred years ago, this standard had been changed two hundred years later. *Johnson's Universal Cyclopædia* gives the following summary of that fact in the definition of the word grain: "A statute of Henry III, in the year 1266, enacted that thirty-two grains of wheat from the middle of the ear, well dried, should weigh a pennyweight, of which twenty should go to the ounce; but finally in the twelfth year of Henry VII the pennyweight came to be divided into twenty-four grains."

Thus it is seen that thirty-two standard grains of wheat were used six hundred years ago to establish the pennyweight, which then became the unit of weight. This pennyweight about two hundred years afterward was divided into twenty-four parts; hence, one pennyweight, or twenty-four grains, should now balance thirty-two grains of wheat, if wheat still conforms in size and weight to the standard taken as an average of wheat in the year 1266. In order, then, to conform to the standard employed by the statute of Henry VII, one hundred grains of wheat should weigh only seventy-five grains.

We have thus a well-established standard concerning the weight of wheat six hundred years ago, and an average of the wheat at the present time should show the effect that time and cultivation have had on the size of the grain. It is not enough, says Mr. Lloyd, for this purpose to take the product of a single State or country; a broad average should be made of the wheats of the world; moreover, the seed is affected by drought and climatic influences. The author has made a comparison of the different wheats from fifteen countries, and the specimens were taken from commercial lots that were averages of those sold in large amounts in the grain markets. One hundred grains were selected from each specimen, care being taken to choose full, plump, smooth, perfect seeds of a uniform, large size. The following is the summary of the results obtained: 1. Granted that the standard weight was created from grains taken from the middle of a selected head of wheat, it is shown that from bulk lots of wheat that appear in most of the markets of the world an average of the heaviest samples will yield a grain as heavy as the grain of the original standard. 2. The general average of all the samples is below the standard grain weight, being 60·870, when it should be 75·000. 3. With two exceptions (England and New Zealand), white wheat headed the list as far as the size of the grain was concerned. 4. Warm countries seem to yield the largest grain, and they also contributed the greatest proportion of white wheat so far as these samples were concerned. 5. In comparing with one another the weights

of forty-two separate lots, each of one hundred grains, from specimens of wheat from different countries, the general average in the weight of wheats from all these countries was found to be far below the given standard, being only 60·870 grains. However, says Mr. Lloyd, an average of the heaviest of the specimens, one from each country, came very close to that of the original standard—namely, 74·734 instead of 75 grains. This would seem to show that cultivation and climatic conditions, during a period of six hundred years, have exercised but little, if any, influence on the weight of selected wheat.

Non-puerperal Peritonitis during the Lying-in Period.

—At a recent meeting of the *Société de médecine*, of Nancy, a report of which appears in the *Gazette médicale de Paris* for September 22d, M. Alphonse Herrgott presented the following communication: The patient was a woman who was about to be confined. She had entered the hospital because she had been suffering with an intense diarrhœa for about ten days. She stated that she had suffered from the same trouble in all her previous confinements. Her appearance indicated cachexia. Milk, salicylate of bismuth, benzonaphthol, opium, etc., were prescribed, and they brought a notable amelioration in her condition. On the 21st of February a girl was born weighing about seven pounds. On the third day the lochia had become fetid, notwithstanding the use of vaginal injections of potassium permanganate. Several intra-uterine injections had been given, which had brought away a certain quantity of altered blood that had remained in the uterine cavity, the size of which showed subinvolution. On the sixth day the uterus had risen to fourteen centimetres above the pubes. The stools had become more fetid and numerous, and the preceding treatment was again insisted upon; boric-acid injections had also been given. The lochia again became normal and the stools less abundant, and the temperature fell from 100·7° to 99·5°. On the eleventh day her condition had seemed relatively satisfactory, when the temperature again rose to 102·7°; the pulse became small and frequent, and the patient began to vomit. The abdomen had become distended, and, as the abdominal walls were very much emaciated, one could follow the course of the intestinal coils, which were considerably distended. It had been remarked that the patient's tongue remained moist, and she did not complain of headache or of any sharp pain on abdominal pressure. Applications of collodion were made to the abdominal walls, but the swelling had increased, and it was impossible to follow the course of the intestinal coils. Her condition became graver, and on the 10th of March she died from peritonitis.

At the autopsy, on opening the abdomen and the peritonæum, the exhalation of an extremely fetid gas and a sudden depression were observed. The peritonæum was congested, and the intestinal coils had been bound down by adhesions of recent origin. The uterus was in its place behind the pubes, and measured thirteen centimetres in length and ten in width; the thickness of the fundus of the organ was a centimetre and a half. On the fundus, and at the left side, the site of the placental insertion, covered with granulations, could be distinctly seen. There was nothing in the uterine lymphatics or in the annexa. The uterus was perfectly healthy. The small intestine was normal; it had only been congested, especially at the extremity of the ileum. The large intestine was enormously dilated and extremely friable. When its entire length was opened, confluent groups of ulcerations in all stages were found all over the surface, as well as several perforations. The part of the colon near the rectum presented traces of several ulcerations, which had been cicatrized. The lungs were healthy.

This woman, who had not shown any trace of puerperal infection, had, then, succumbed to an ulcerative entero-colitis with perforation, which had led to a fatal peritonitis. M. Herrgott dwelt upon the errors of diagnosis which a physician might commit at the time when the history, given by the patient, had not been of a nature to permit him to suppose the existence of such grave and extensive lesions of the large intestine, and he pointed out with what facility, in similar cases, a morbid process of this nature might be confounded with real puerperal infection.

The Employment of Sponges in Surgery.—At a recent meeting of the *Académie de médecine*, a report of which appears in the *Journal des praticiens* for September 19th, M. Guermontpré, of Lille, read a paper on this subject. After having recalled the advantages and the inconveniences of the sponge from an operative point of view, the speaker related a series of experiments which he had instituted in order to investigate the necessary conditions for the absorption of sponge fragments left in the various tissues of the animal economy. The length of time necessary for this absorption among dogs and rabbits varied from fifteen days to a month, and a sponge of the size of an egg had disappeared at the end of five months. The sponge becomes changed in its structure, it loses its elasticity and color; it becomes granular and finally disappears entirely. Of all the tissues, the connective tissue presents the greatest absorbent faculty.

M. Bernard Paulet had made use of this knowledge by grafting small fragments of sponge on ulcers of the leg. In all cases the sponge had acted in the same way, the fragments becoming modified and adherent, and finally absorbed, while at the same time the sore had changed its aspect and had begun to granulate.

M. Guermontpré afterward cited two cases that had come under his observation in which extensive excavations of the tibia had been treated by grafting with fragments of sponge. In these two cases the osseous lesion, which was very extensive, had followed the elimination of a deposit. The first case was that of a boy, ten years old, in which the sore had been sown with small fragments of sponge. It had rapidly become modified, begun to granulate, and healed, while the sponge had disappeared. The second case was that of a young man, nineteen years old, who had shown symptoms of scrofula. There had been an enormous loss of osseous substance, which it had seemed almost hopeless to try to repair by the ordinary means. There had been, furthermore, a complete retraction of the extensor muscles of the feet. Half of the wound was sown with a large fragment of sponge, and the other half with small pieces. The sore had healed, and the lost portion of tibia had been completely restored. The half of the cavity which had been sown with the small fragments had healed more quickly than the other half. The speaker had also tried the use of sponges in cavities following purulent pleurisy, but without good results; the sponge had not even become adherent. It was the same in wounds due to ulcerated neoplasms.

On the other hand, M. Lombard, of Solesmes, had obtained excellent results in extensive ulcers due to burns. In all cases of recovery the cicatrix obtained had presented a remarkable resistance and elasticity. M. Guermontpré remarked that the sponge did not act well except in wounds that had been thoroughly disinfected in the beginning; in suppurating wounds or those following neoplasms the sponge did not act at all.

Partial Petrification of a Cystic Hygroma.—In the August number of the *Nordiskt medicinskt Arkiv* Dr. J. Forssman gives an account of a tumor situated in the left thigh, imme-

diately beneath the tuberosity of the ischium, to which it was adherent. Its existence had been known for twenty two years. It was situated behind the adductors and in front of the semimembranosus and semitendinosus muscles, and was covered by the gracilis. When it was first observed it was of the size of an egg, and had grown slowly but continuously until it measured about four inches in its vertical diameter and three inches and a half from side to side. Only in the latter stage of its growth had it been painful. At the time of the operation it was observed to be separated from the surrounding structures by a connective-tissue capsule. On section, it was found that the tumor was composed of a great number of lobes limited by connective tissue, the diameters of which varied from one centimetre and a half to four centimetres. The smallest lobes were partly solid and somewhat glutinous; the walls and the contents of the larger lobes were for the most part calcified. The central portion, which was not altered to so great a degree, was composed of viscid masses of a reddish-brown and semitransparent. Under the microscope it was seen that the small lobes consisted of a reticulated and filamentous connective tissue and of a clear intercellular substance which was not affected by hydrochloric or acetic acid. The wall was formed of fibrillated connective tissue. In the larger lobes the network was thicker and hyaline, and the intercellular substance was transformed in some places into a sort of colloid material, and in others it was coagulated, and the limiting fibrillated wall was sclerosed. These lobes, indeed, appeared petrified, either in their totality or simply in their walls and peripheral portions. The small lobes were supposed to belong to the early period of the growth of the tumor, and the larger ones to a later period, with different phases of the transition denoted by the other lobes. The causes of the uneven development of the tumor are attributed to the fact that the conditions of its nutritive supply varied in its different parts. The author remarks that hygromata having this appearance are very rare, and that the locality in which this one was found is well known not to be one of those in which these tumors are commonly met with.

Should the Frenum of the Tongue be Cut?—The *Revue internationale de médecine et de chirurgie pratiques* for September 10th contains a review of a work by M. Chervin. The author says that the habit of cutting the frenum of the tongue, which is so commonly practiced at present in Upper Brittany, Yonne, Poitou, etc., is based on the idea that the defects of pronunciation, especially stammering, are due to malformations of the tongue. For the past fifty years it has been practiced by the best surgeons of the time. It recalls the excision of the palate practiced in Persia by the barbers as a prophylactic measure in inflammation of the throat. Section of the frenum should be extremely limited in its application; when, for example, there exists an inankyloglossia, congenital or acquired, immobilizing the tongue more or less in a part of the mouth. This may be total or partial. When the frenum is excessively long, reaching sometimes to the point of the tongue and impeding its movements, simple section is not sufficient; excision must be resorted to. This operation should not be employed commonly, for, insignificant in itself, it sometimes offers serious dangers on account of the child's age.

It is wrong, says M. Chervin, to think it is always indispensable if the child nurses badly. A few exercises in suction on the finger may correct this defect without any operative intervention. In all cases excision of the frenum is absolutely useless for correcting faults of pronunciation. They are amenable only to a methodical, natural, and rational education of the organs of speech, the duration of which need not exceed three weeks.

Original Communications.

THE METHODS AND VALUE OF SUPERVISED EXERCISE IN THE PROPHYLAXIS OF PULMONARY PHTHISIS.*

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PULMONARY tuberculosis is essentially a disease of defective nutrition. Its immediate microbial factor is universally acknowledged, but underlying the bacillary growth is a certain vulnerability of the tissues. Pathogenic germs require definite conditions for their growth. If the necessary conditions are absent, growth and multiplication cease.

Without question, the tissues of the human body vary in their susceptibility to the advances of the tubercle bacillus. This susceptibility varies in different individuals, and in the same individual at different times. The proof is so obvious that it simply requires mention. The large majority of civilized individuals are exposed to the entrance of the bacilli into different parts of the body, but only the minority, sadly large, to be sure, surrender to the invasion. The fact that pulmonary tuberculosis occurs in a given organism, develops to a given point, and then under changed conditions and environment is arrested, constitutes proof positive of variance in the resisting power of the individual.

Improvement or arrest can not be credited to specific medication, for specific medication in phthisis is as yet a chimera. A consideration of the anatomical situation of the bacilli in this disease should at once dispel any hope of direct germicidal treatment. Imbedded as they are in thick mucus, fibrous tissue, and epithelial *débris*, and situated somewhere at the ends of an intricate system of branching tubes, which constantly grow smaller, the mere mechanical difficulties are insuperable. This statement applies not only to nebulized solutions, but to vapors as well. The only way by which vapors enter the air cells is by diffusion, and the mere surface contact of a gas is not sufficient to act as a germicide. The well-known difficulty of sterilizing the external surface of the body in surgical practice bears upon this point. The hard scrubbing and prolonged soaking required is an interesting commentary on the futile attempts at local pulmonary disinfection which are still made.

The nature of immunity—natural, lost, or reacquired—is still a mystery. The terms used to characterize it show themselves a mere begging of the question. Predisposition, proper soil, hypotrophy, vulnerability, involve various hypotheses and somewhat metaphysical speculations, which, while of extreme interest, can not be claimed to represent exact truth. Biochemical or vital forces have not been

weighed or measured except as to their manifestations. Dynamic variations of cell power are not yet visible to the microscope, except in their grosser results. Granting that the essence of life power is unknown, it is nevertheless a convenience to use the terms mentioned.

A certain vulnerability, then, is antecedent to the development of pulmonary tuberculosis. On analysis, all measures directed toward its prevention or arrest act directly or indirectly toward improving the resisting power of the tissues. An exception must be made of those means which tend to lessen the chances of infection—viz., the destruction of bacilli-laden sputa, disinfection of infected rooms, houses, or food, and the limitation of prolonged and close contact with the consumptive.

The measures employed for the prevention or arrest of phthisis may be classified as follows, omitting any form of quarantine or disinfection:

Climate, abode, and outdoor life.

Medication, general and local.

Personal hygiene and habits of life.

Exercise, general and special, with its corollary, rest.

Diet.

I have no intention of specifying the relative importance of these lines of treatment. It is not safe to neglect any one of them, so far as compatible with the circumstances and condition of the patient. Any device or measure that will strengthen and fortify the cells and tissues of the body should be carefully sought after and employed if practicable.

Realizing thoroughly the importance of broad treatment in this as in other diseases, I beg to call particular attention to one of these items—exercise.

I am very firmly convinced from fairly large personal observation that regulated exercise as a therapeutic resource is neglected by many physicians. This neglect does not arise from ignorance, because this subject has been fully and scientifically exploited in various periodical and systematic publications. It is more akin to the feeling with which one regards some of the English classics—as most worthy of regard, but not suited for practical everyday use.

In prescribing exercise the supreme importance of exact attention to detail should be emphasized. It is important in all things, but a matter of necessity in this. The title of a paper by Weir Mitchell may well stick in the mind. "Precision in the Treatment of Chronic Disease" is a most felicitous phrase, and beautifully descriptive of the mental attitude which should exist in the mind of the physician who is treating pulmonary tuberculosis, imminent or acquired.

There are two classes of cases in which exercise is of a peculiar value:

1. The pretubercular status.
2. Incipient tuberculosis.

The boundary lines can not be laid down with absolute accuracy. The personal equation of the observer is a factor in assigning an individual case to its proper class.

Broadly speaking, the first class comprises those in

* Read at the annual meeting of the American Climatological Association, Washington, May 29, 1894.

which the conditions presented give rise to a reasonable probability that phthisis will develop; the second class those in which the signs and symptoms are such as to show beyond peradventure that tuberculosis exists, but only to an extent that warrants one in terming it "incipient." The classification is a good working formula, if not scientifically correct.

The symptoms and signs, in greater or less number, and to a greater or less degree, presented by the pretubercular status are: Progressive loss of weight, languor, dyspnoea, irregular or absent menstruation, anorexia or capricious appetite, insomnia, tubercular family history, neurasthenia, poor chest expansion, deformity of chest—viz., non-physiological asymmetry or depressions—slight cough, afternoon temperature normal, or 99° F.; finally, absence of decisive pulmonary physical signs.

The symptoms and signs of the second class—incipient phthisis—are so familiar that it is unnecessary to recapitulate them. *Hæmoptysis* is an event that is well-nigh pathognomonic. The physical signs may be so slight as to require the most careful and repeated examinations for their detection or so well marked that the diagnosis is at once indubitable. The history may include a previous pulmonary or pleuritic affection. The clinical picture should not exceed in its coloring the limitations understood by the term "incipient."

Exercise may be either general or local. The benefits of general exercise may be briefly mentioned: Increase in bulk and strength of muscles, stronger action of heart, improved circulation—arterial, venous, and lymphatic; increase of respiratory capacity, better action of skin, increased depurative functions, improved sleep, appetite, and digestion, and last, but by no means least, a decided bettering of the nervous system. The motor mechanisms of the body are not solely muscular, they are neuro-muscular. Regulated action of the muscles involves the correlative activity of the nerve centers from which they receive their stimuli. Training the nervous system by muscular exercise most certainly improves its functional capacity. When one recalls its varied, complex, and important activities it is readily seen that results of great value may ensue.

This paper is not intended to deal further with the large subject of general exercise, but to treat more particularly of local or special exercise, which in this connection consists of measures conveniently termed "pulmonary gymnastics."

The direct effect of pulmonary gymnastics is to strengthen the muscles of inspiration and expiration; to increase the size of the thorax and thereby add materially to the respiratory capacity; to increase the ease and fullness of the pulmonary circulation, and to promote the interchange of gases and the general supply of oxygen to the tissues. According to the rule that full use of any organ adds to its functional energy and structural development, it is properly said that pulmonary exercise brings the vital force of the lungs to its maximum. "Maximum vital force of the lungs" means that the cells of the various tissues composing the lungs are brought to the highest attainable perfection of structure and function, so far as this is dependent on their full and proper use.

The exercises which may be properly termed "pulmonary" are those which bring into special action the muscles of inspiration and expiration, ordinary and extraordinary, and also tend to place the head, neck, shoulders, and thorax into such positional relations that the expansion of the lungs is facilitated and increased. The various modes of pulmonary gymnastics may be classed under the following heads:

Singing and elocution lessons and practice.*

Use of wind instruments.

Deep breathing, alone.

Running, climbing, brisk walking, and sports which accelerate the breathing.

Use of compressed or rarefied air, and their combinations.

Military setting-up drill.

Supervised exercises, especially adapted to improve respiratory capacity.

Lessons in singing and elocution involve deep inspiration and regulated expiration. So also does the use of wind instruments. To those who enjoy the practice of these arts there is opened a pleasing and efficacious method of increasing the respiratory capacity. These means are not employed to the extent that is desirable. Practice of this kind has the advantage of securing the willing and persevering adherence of the patient.

Deep breathing alone, repeated a number of times during the day, is very useful, but the direction so to do is usually honored in the breach rather than the observance.

Running, climbing, and fast walking indirectly increase the breathing power. All these, especially running and climbing, are adapted for comparatively few cases, because of the very decided effort and strain which they entail. Moreover, these efforts are apt to be ill-regulated and injudiciously severe. They should never be prescribed without the most minute directions as to time, length, and severity.

Aerotherapy, or the use of air, rarefied or compressed, in varying combinations, is a valuable resource. There is a great variety of apparatus, both simple and complicated, for use in this connection. Some of them aim at an artificial climatotherapy, with differing conditions of density and moisture. Others simply interpolate varying degrees of resistance during the acts of inspiration and expiration. Ordinary breathing tubes and wind instruments ought properly to be classed under this head. There has been much inconclusive writing on this subject. Many of the statements advanced by various observers have a largely speculative character, and do not appear to be based upon experimental findings. There is a lack of control experiments upon the comparative effects of breathing compressed and rarefied air, and forced breathing without apparatus. The relative permanency of these effects is also an open and very important question.

Certain portions of the military setting-up drill are useful in promoting proper carriage of the head, neck, and thorax. Some of the movements as usually practiced are

* Suggested by Dr. A. H. Smith (personal letter).

more violent than is desirable for persons not in full vigor of health.

Supervised Exercise.—Under this designation I refer to exercises of various kinds, graduated from time to time to suit the varying requirements of a given case, and practiced regularly under the guidance of a competent instructor, lay or medical. This method is by no means new, but has proved of sufficient value in my own work to deserve more than a passing notice. In most of the larger towns and cities it is quite possible, after a little search, to find a competent man or woman, graduated from a reputable school of physical culture, who can be trusted to do this line of gymnastic work. It should be understood that the entire course of treatment is carried on under the general direction of the physician.

The methods pursued are as follows :

Hygienic dress is insisted on, this generally being requisite in the case of female patients.

Regular daily work is required, with simple exercises to be taken at home.

Measurements and tracings of the thorax are made, and the vital capacity ascertained by the spirometer. These records, made at the beginning of treatment, are valuable for purposes of comparison with similar records made at subsequent periods.

After a careful study of the patient's general strength and pathological condition, a certain set of exercises is prescribed. The effort is to adjust the prescription exercise so as to fulfill the indications in the given case. These indications may be :

To correct deformities, depressions, and pathological asymmetries of the thorax.

To increase chest expansion and vital capacity.

To secure permanently deeper breathing by training the neuro-muscular apparatus to habits of ampler rhythmic action.

All of these desirable results I have seen attained.

A certain amount of general exercise is usually given in order to secure the benefits acknowledged to result from it—viz., better appetite and digestion, sounder sleep, healthier condition of the skin and eliminative organs, and improved circulation. As the greater includes the less, a measurable degree of the benefit of general exercise is secured by pulmonary exercise alone.

A large variety of exercise is available, according to the patient's ability and the results desired. Movements may be active, duplicated, or passive.

An active movement is one accomplished by the patient without the aid of the operator.

A duplicated movement involves resistance to the operator on the part of the patient, or resistance to the patient on the part of the operator. The former is eccentric, the muscle being lengthened while contracting; the latter is concentric, the muscle being shortened while contracting.

A passive movement is performed by the operator, without effort on the part of the patient.

It will readily be seen that exercises of this kind may be graded by very small steps from those which are effort-

less to those which require more than ordinary strength to execute. Although there is great variation in the outside appearance of many of the exercises they have in common certain underlying aims :

1. To elevate the shoulders.

2. To draw back the clavicles and scapulæ, and thus by traction on the pectorals to elevate the ribs and expand the thorax.

3. To strengthen the muscles of ordinary inspiration, the diaphragm and intercostals; also the muscles of forced inspiration, the scaleni, sterno-mastoids, trapezius, two serrati, and rhomboids.

4. To strengthen the muscles of forced expiration (ordinary expiration being passive and non-muscular), mainly the abdominal and quadrate muscles.

The third indication—to strengthen the muscles of inspiration—may be considered the most important. It is very desirable that the muscles of the neck, which have been mentioned above, should receive attention. If the muscles running down from the cervical spine to the upper ribs and shoulders are strong and of a good tonus, valuable aid is given to ordinary inspiration.

An example of a passive movement: Patient sitting, operator standing behind; the operator's hands are placed under the axillæ, patient leaning back; the shoulders are then drawn upward and backward, patient inhaling; then downward to the sides, patient exhaling.

An active movement: Patient, standing, extends arms above head, raises body on toes, inspiring at the same time; then down on heels, exhaling.

A duplicated movement: Patient sitting; operator, standing behind, grasps patient's hands, draws the arms vertically upward against patient's resistance; then patient draws arms down against operator's resistance. This is practically Sylvester's method of artificial respiration.

A good operator will begin moderately; will watch the patient carefully to avoid undue fatigue; will vary and add to the movements as strength is regained or acquired. It is a progressive method.

I beg to report in synopsis four illustrative cases out of a series in which supervised exercise was employed as one of the items of treatment :

CASE I.—Physician's daughter, aged twenty-two years. Successive attacks of influenza; no hereditary taint. Loss of flesh, dyspnoea, left chest pain, headache, unrestful sleep, poor circulation. Examination showed infraclavicular depression and asymmetry of thorax, slight relative dullness at left apex, weak respiratory murmur, and fine crackles on deep inspiration over same area. Fine crackles disappeared after a few deep respirations. Evening temperature, scant 99° F. Lung capacity considerably below normal.

Treatment.—General tonics, alimentation, hygienic dress (which was needed), light movements followed by massage.* Light work at home. At the end of six weeks tracings showed depressions at left side of thorax nearly obliterated; measurements, that all diameters had increased; average gain in lung capacity, fifty cubic inches; pain gone; sleep normal; appetite above normal. Improvement permanent.

* By Miss Marsh, of Brooklyn.

In this case the apices were catarrhal and non-aerated. If tubercular disease was not present, it was at least imminent.

CASE II.—Also the daughter of a physician. Hacking cough for some weeks; evening temperature, 100° to 100.5°. Slight expectoration; slight dullness both apices, with scanty crackles and moderately harsh breathing, especially on right side, after making due allowance for physiological differences. Expansion poor. Treatment* and subsequent history like Case I, but longer continued.

CASE III.—A woman, aged twenty-four years. Hæmoptysis small, but extending over several weeks, with previous history of gradual failure of health. Indubitable physical signs of localized apex tuberculosis. Poor expansion and vital capacity. Medicinal treatment and alimentation were rather unsatisfactory until supervised exercise† was added. She remained in good health for a year, when worry and care for a father who died of very chronic phthisis caused a relapse (probable reinfection). The way opened for her to go to California, where she now is, and doing well.

CASE IV.—A woman, aged twenty-five years. First seen four years ago with localized right apex tuberculosis of at least eight months' standing. Weight, one hundred and eight pounds. Afternoon temperature running 101° to 102°. Extreme weakness, dyspnœa, anorexia, and insomnia. So well marked was the disease and so unpromising her condition that a considerable sum was paid her by a benefit society, after a careful examination by three physicians, on the ground that her disease would prove inevitably fatal. In this opinion I fully concurred. She was first placed under the "rest cure"—rest, massage, electricity, and superalimentation. Six weeks of this brought her temperature down and her weight up. Careful management and graduated exercise under my own supervision caused a slow arrest of her disease, and to-day she weighs one hundred and forty-eight pounds, a gain of forty pounds, and the apex lesion, while perceivable, is quiescent.

In this case the exercises were under my personal direction, because at that time I was unacquainted with the great help to be afforded by a competent operator. The patient was unusually tractable and conscientious in carrying out detailed directions. I have found the "rest cure," with or without isolation, an extremely valuable resource in beginning the treatment of somewhat advanced cases.

A distinct advantage of supervised exercise is the moral effect on the patient by which the regular and persistent use of this means of treatment is assured. Without the stimulus of expected attendance on the operator, prescribed exercises are very apt to be neglected. Under ordinary circumstances most of us can not afford the time required to properly administer and supervise such exercises. Instruction should be definite, personal, and repeated. Herein lies another value of the trained operator.

The objects of supervised pulmonary exercise, as before formulated, are substantially similar to those of mechanical aerotherapy. The comparative utility of each deserves a word of discussion. Judging from personal observation of cases submitted to both methods, I am convinced that the effects in permanently strengthening the muscles of respiration and increasing the chest capacity are more marked

with supervised exercise than with aerotherapy. This statement applies only to the pretubercular and incipient stages. Permanence of effects is obviously extremely desirable. The superiority of one method over the other in this respect is founded upon the differing quantitative muscular efforts required. In pneumotherapy the following combinations may be attained by suitable mechanical devices:

Inspiration of—	Expiration into—	Inspiration is—	Expiration is—
Compressed air.	Compressed air.	Passive.	Active.
" "	Rarefied air.	"	Passive.
" "	Atmospheric pressure.	"	"
Rarefied air.	Compressed air.	Active, but expansion is hindered.	Active.
" "	Rarefied air.	Ditto.	Passive.
" "	Atmospheric pressure.	Ditto.	"
Air at atmospheric pressure.	Compressed air.	Active.	Active.
" Ditto.	Rarefied air.	"	Passive.
Finally, inspiration and expiration of air at atmospheric pressure, as in normal breathing and pulmonary gymnastics.	.....	"	"

It will be seen by examination of these combinations that—

(a) Inspiration of compressed air is always passive and does not strengthen the muscles of inspiration.

(b) Inspiration of rarefied air is active and strengthens the muscles of inspiration; but the negative pressure of the inhaled air diminishes and hinders chest expansion.

(c) Inspiration at atmospheric pressure is active, strengthens the muscles of inspiration, and there is no hindrance to expansion of chest.

(d) Expiration into compressed air is the only mode which strengthens the muscles of expiration. Practically this is equivalent to interpolating a greater or less resistance to expiration.

I claim, therefore, that voluntary active inspiration of air at ordinary pressure is the best method of securing permanent improvement in the respiratory capacity, because it is the most efficacious in strengthening the muscles of inspiration. This, in substance, is accomplished by supervised pulmonary exercise.

If it is desired to especially strengthen the muscles of expiration and to cause hyperdistention of the air cells, that end may be attained by the use of the resistance valves of S. Solis-Cohen or Dennison, or even the simple breathing tube. The latter is unscientific because there is no means of varying the resistance.

Facilitation of gaseous interchange and certain circulatory effects are claimed for the use of air at varying pressures. Probably these claims are well founded, although the evidence is largely theoretical. Nevertheless, the continuance of the pressure is comparatively so brief that these effects must be evanescent.

I do not wish to be understood as decrying mechanical acrotherapy. I simply desire to state that with the class of cases dealt with in this paper I have obtained distinctly

* Operator, Miss Lindley, of New York.

† By Miss Marsh.

better and more permanent results with voluntary exercise.

The drawback of supervised exercise is obviously the difficulty of securing expert operators. As before stated, this difficulty does not apply to large cities. With reference to places where no operator resides, it may be affirmed that a physician who makes himself reasonably familiar with the subject can, by spending some time and trouble, train an available and intelligent person to do this work in a satisfactory manner. The practice of physical culture in the schools is fortunately spreading so rapidly that there are few towns of any size that do not contain some person, man or woman, who has given considerable attention to this subject. Such an one is usually willing to undertake medical gymnastics. Demand creates the supply.

In passing, it may be said that well planned supervised exercise is extremely useful in other than pulmonary conditions. I have seen excellent results in beginning lateral curvature, stooping shoulders, improper carriage of the body, awkwardness, psychical or congenital, habitual constipation, and disorders of digestion.

As a sample of exercises * which may be taken by the patient where supervision is not attainable, I submit these photographs. These exercises are intended for a person not much below the average strength, but the manner of performance may be modified to suit less vigorous individuals.

The photographs are made from a professional model. Each series represents an exercise; each figure, a phase or movement of the exercise. By noting the successive changes of position and contour from left to right, in connection with the text, a very imperfect idea of the exercise and its effects on the thorax and respiratory muscles may be gained. A personal trial of the movements will give a much more vivid realization of their physiological results.

To formulate conclusions:

1. The treatment of phthisis should be broadly comprehensive, but minute in detail.
2. Among many therapeutic agencies for imminent or incipient phthisis, one of the most useful is respiratory exercise.
3. Of all methods of obtaining increase of respiratory strength, capacity, and nutrition, supervised exercise secures the most permanent and lasting results.

Bibliography.

- Evans, G. A. Mensuration in the Diagnosis of Pulmonary Phthisis (Discussion of). *Brooklyn Medical Journal*, November and December, 1893.
- Hartwell, E. M. Article General Exercise, in Hare's *System of Practical Therapeutics*, vol. i, 1891.
- Hogner, Richard. *Boston Medical and Surgical Journal*, March 3, 1894.
- Keating, J. M. Article Physical Development, in his *Cyclopædia of Diseases of Children*, Part III, vol. iv, 1891.
- Landois and Stirling. *Physiology*. Fourth (American) edition.

* Arranged by Miss Jessie A. Lines, Director of Physical Culture, Pratt Institute, Brooklyn, N. Y.

Ostrom, K. W. *Massage and the Swedish Movements*. Second edition, 1891.

Otis, E. A. Pulmonary Tuberculosis. *Boston Medical and Surgical Journal*, October 5 and 12, 1893.

Solis-Cohen, S. Pneumato-therapy. *Therapeutic Gazette*, January, 1887. Best summary of the subject, with many references.

Solis-Cohen, S. Article Tuberculosis, in Hare's *System of Practical Therapeutics*, vol. i, 1891.

DIPHTHERIA AND THE SERUM THERAPY.

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DIPHTHERIA is now admitted to be a specific infectious disease caused by the Klebs-Loeffler bacillus. It begins with a local infection, usually upon a mucous membrane, and the bacilli for the most part remain in the infected focus, while the constitutional effects are caused by their products. Councilman (Pathology and Diagnosis of Diphtheria, *Am. Jour. of the Med. Sci.*, November, 1893) and others think that the bacillus seldom if ever gets into the circulation. It is true that Frosch (*Zeitschr. f. Hygiene u. Infektionskr.*, Bd. xiii) found a few bacilli in the blood, and Escherich (*Wiener med. Wochenschr.*, 1893, No. 49) obtained two pure cultures from the kidney, but usually they are absent. Perhaps Jemma's researches may yet clear up this point. He has been experimenting lately in the direction first pointed out by von Fodor in 1887, and he says that normal serum kills the cholera and typhoid bacilli, and that the serum in fever (39°-40.5° C.) not only kills but destroys these two bacilli in an hour and a half (*Archivio ital. di clinica medica*, 1893). There may be a similar action upon the Klebs-Loeffler bacillus.

The *Bacillus diphtheriæ* has so characteristic an appearance that it could be readily recognized with the microscope alone were it not that there exists a non-virulent micro-organism, the *Bacillus pseudo-diphtheriticus*, which resembles it exactly. Roux and Yersin, Councilman, and others are of the opinion that this bacillus is a form of the Klebs-Loeffler bacillus. The latter is a straight or slightly curved, round-ended, non-motile rod. Irregularity in position in the field and irregularity in shape are characteristics. We see bacilli that have one end swollen and the other end tapering, dumb-bell shapes, dolphin-like and diplococci-like shapes, scattered and felted among the regular forms. There are dark and light spots in the bacillus when it is not overstained, but it has no spores. It is stained very well and rapidly with Loeffler's alkaline methylene-blue solution. The best culture medium is a mixture of 0.1 part of a solution made up of peptone and grape sugar, 10 parts of each, sodium chloride 5 parts, and water 100 parts, with 2.9 parts of beef-blood serum. This mixture, placed in a slanting position in cotton-stopped tubes, may be coagulated and sterilized at the same time by leaving it for six hours at a temperature of 85° in a Wiesnegg oven. The consequent cloudiness is not a disadvantage. Fractional sterilization is better, but practically

it is not necessary, and steam sterilization is not satisfactory. It seems probable that the *Bacillus pseudo-diphtheriticus* is present in throat affections much oftener than is commonly supposed. Recently two inoculated serum tubes were sent in to me on the same day by a physician from patients that had pharyngitis with no membrane or any constitutional symptoms of diphtheria. The bacillus was present in each case, but it had no effect upon guinea-pigs inoculated with it. Secondary cultures clearly showed this same bacillus, still non-pathogenic, in one case eleven days and in the other twelve days after the first culture.

There have been many articles recently published upon the non-identity of membranous croup and diphtheria, as if the question were not settled long ago; but not enough stress is laid upon the fact that a bacteriological differential diagnosis is the only possible diagnosis. No man can diagnose diphtheria by merely inspecting a membrane. We should urge our boards of health to supply the media for this diagnosis as is done in New York, New Orleans, and in other cities. The apparatus is not at all costly. A cover-glass specimen made directly from the membrane is unsatisfactory and not reliable. The bacillus may be present, but it is easily missed; even if it is found we must often inoculate animals to be sure we are not dealing with the *Bacillus pseudo-diphtheriticus*. It is not enough for diagnosis that the disease is mild in a patient, because some children resist unusually well, and a seemingly slight attack may be caused by very virulent bacilli. The New York method is simple and very practical. They use boxes holding two small test-tubes separated by a wooden partition. One of these tubes contains sterile serum bouillon, the other a metal rod carrying a sterile cotton swab held in place by a cotton stopper. These boxes, with directions for use printed thereon, are left at stations (drug stores) throughout the city and renewed at fixed intervals. A physician having a case of suspected diphtheria gets one of the boxes, makes an inoculation, sends the box to the central station, and the next morning the diagnosis is sent to him by telephone. The advantages of this method are evident. Isolation, prophylaxis, placarding of the house, anxiety of parents, intelligent treatment, subsequent disinfection, a statistical knowledge of the number of cases of real diphtheria, of membranous croup, and of similar diseases, and various other important considerations all depend upon the bacteriological diagnosis. We should ask physicians and homœopathic practitioners to send in inoculated tubes from every form of exudative throat affection they meet with. Then our statistics would be of some value.

Within about twenty hours after a guinea-pig is inoculated by the Klebs-Loeffler bacillus there is a soft œdema noticeable at the point of infection. The next day there is dyspnea, and the animal can not stand up when laid upon its back or side. Guinea-pigs of four hundred grammes weight die in from thirty-six to forty-eight hours, but bigger guinea-pigs may live for sixty hours. They die of toxæmia, and then there is no bacillus found in the circulation, or they die with a characteristic paralysis.

In children the bacilli are found in the membrane and in the sputum, and they remain infectious in some cases

for weeks after all symptoms of the disease have passed away from the patient. They get upon cups, glasses, the hands; upon beds, the floor, the clothing and instruments of physicians, and upon the walls of the house. Professor Flügge (*Zeitschr. f. Hygiene u. Infektionskrankh.*, Bd. xvii) says that if they are dried and covered over from light and air by saprophytes, they live from seven to nine months and probably longer. He thinks that although they may remain alive, they do not grow in earth, water, or on house walls, but that they may multiply imperfectly in milk, upon meat, and in other places where they obtain nourishment. A somewhat low temperature, moist air, and darkness favor growth. In summer they are easily dried out, and they are more active in houses during the winter months than in summer. Welch (*Medical News*, May 16, 1891) told us all these facts years ago. Cases of diphtheria are not so frequent during July and August, and this intermission may be caused in part by the condition of school vacation. In two cases where I took cultures from near the tip of the tongue of children dead with diphtheria the growth was as plentiful as if the culture had been taken from the membrane. This suggests local treatment for the entire mouth, not merely for the membrane.

Sidney Martin, in a paper on the Chemical Pathology of Diphtheria (*Report of the Local Government Board*, London, 1891-'92, vol. xxi), describes how he isolated the poison of the bacillus, but he arrives at conclusions which other bacteriologists will probably not fully admit. He extracted by alcohol from the tissues of patients dead with diphtheria a light yellowish-brown powder soluble in water, and consisting almost solely of deuto-albumose and a small quantity of proto-albumose. There was no peptone present. It gave all the ordinary reactions of proteids, and was completely precipitated from solution by saturation with ammonium sulphate. There was no organic base or alkaloid found. His study of the parenchymatous degeneration of the peripheral nerves is valuable, and it confirms the observations of Déjérine and Meyer. From the membrane Martin got a proteid, much hetero-albumose, and some proto-albumose and deuto-albumose. These last three substances indicate a process of digestion. The membrane poison, moreover, is stronger than that extracted from the tissues. He maintains that the *Bacillus diphtheriæ* liberates a proteolytic enzyme which forms albumose and an organic acid in the body, and that these digested products are the agents which cause fever, paralysis, and death. It is almost morally certain that he had associated bacteria in the membranes he worked upon. He does not allude to this matter, but their presence should throw some doubt upon his deductions.

The bacillus and its poison are very tenacious of life and virulence. Roux and Yersin say the dry extract will resist 100° C. longer than twenty minutes (quoted in the *Zeitsch. f. Hyg. u. Inf.*, Bd. xvi). The bacillus itself is destroyed by exposure for ten minutes to a temperature of 58° C. This consideration leads to the question of disinfection after the disease. If furniture or textile fabrics are to be removed for steam disinfection they should be carried in bags which have been soaked in one part acid

bichloride of mercury solution to three parts glycerin. The glycerin prevents the crystallization and consequent falling out of the bichloride. Nothing need be said about steam disinfection, but in cities which have no steam plant there often exists the utterly erroneous notion that the diphtheria bacillus may be killed by sulphur fumes. Sulphur fumes will kill *moist* diphtheria bacilli, but not the dry bacilli, especially when these are covered by a glaze of mucus or by saprophytes, unless the disinfection be carried on in a reverberatory chamber or by burning enough sulphur to destroy the fabrics. There is needed ten per cent. of sulphur dioxide in the air to kill the bacilli, and, although twice this amount may be liberated by burning the sulphur, only about six per cent. is available. All textile fabrics should be put into wooden wash tubs containing either an acid bichloride solution (two parts HCl, one part sublimate), 1 to 1,000 in strength (*i. e.*, a drachm to each gallon of water), or a three-per-cent. pure carbolic-acid solution (two drachms to the gallon). Soak the articles at least an hour in the disinfectant, rinse with clean water, and dry. Mattresses and pillows should be pulled apart, soaked, dried, and remade. If carpets and other fabrics have aniline colors in them the colors may "run," but that can not be helped. The room should not be swept, because this process will float the bacilli into the air, and they will settle down afterward unharmed. Cut fresh loaves of bread into halves and rub down the walls and even the ceilings to collect the free dust. Burn this bread. Then *stipple* the walls with a stiff brush wet with the acid bichloride solution, even though the paper be destroyed at times. Mere wetting the walls is not enough. The floor should be thoroughly scrubbed with soapsuds, and this wash water should be disinfected before it is thrown away. Afterward wet the floor thoroughly with the sublimate solution. If the convalescent child is permitted to wander about the rooms it may be necessary to disinfect the entire house.

The first sign of the "membrane" is redness; then comes a transparent jelly-like exudate which grows porcelain-white and later snowy white, then creamy yellow, then gray, then brown, and it may get almost black. The membrane is somewhat tough, leathery, as the name diphtheria indicates. The formation of the membrane has been so frequently described, and so well, except when the hyaline formation is discussed, that nothing need be said here. When between the edge of the membrane and the untouched mucosa a red, angry line appears, this line is sometimes called a "reaction edge," and its presence is of good import. In its absence the neighboring mucosa is pale and the membrane will spread.

Particular attention should be called to the association of bacilli within and upon the membrane. It is almost the rule to find other bacteria mixed with the Klebs-Loeffler bacillus. The *Streptococcus pyogenes* occurs most frequently. Barbier (De quelq. associat. microbiennes dans la diph., *Archives de méd. expér.*, 1891) put streptococci on the vaginal mucosa of a guinea pig. These caused a slight inflammation with a sero-purulent exudate. Then he used the Klebs-Loeffler bacillus in the same manner, but with a negative result. Next, he applied a mix-

ture of streptococci and the *Bacillus diphtheriæ*, and thus excited a severe inflammation with sero-fibrinous exudate. Funck's recent experiments (*Zeitschr. f. Hyg. u. Inf.*, Bd. xvii) confirm Barbier's conclusions, yet Funck maintains that the influence of the streptococci is not so great as some authors assert it is.

When grave septic signs appear in diphtheria these are results of putrefactive, gangrenous processes in the buccal and nasal cavities, which in turn are caused by bacteria other than the *Bacillus diphtheriæ*. Gangrenous stomatitis, characterized by destruction of the buccal mucosa, and fetor of the breath are complications of diphtheria and not direct effects of the disease itself. These conditions are oftenest met with in dirty, ill-conditioned children that have carious teeth or scabs in the nose and nasopharynx, and they must be combated with chlorate of potassium and with other means. When septicæmia supervenes we are as helpless as are the surgeons; more helpless, indeed, because in our internal-medicine clinics and private practice we are usually unclean. Until we acquire the surgeon's horror for pyogenic micro-organisms septicæmia will remain unchecked.

At present the method of treatment in diphtheria is local disinfection combined with efforts to combat constitutional intoxication. The employment of the Behring's immune serum therapy comes under the latter part of the method, and the use of Klebs's antidiphtherin, now under examination, resembles local disinfection. The multitude of drugs advocated shows very conclusively that we have no specific, and that much empiric groping is done. Williams (*Amer. Jour. of the Med. Sci.*, November, 1893) maintains that the highly praised sesquichloride of iron acts only by the contained acid, and that water holding the same quantity of hydrochloric acid is equally effective. In connection with this matter of iron he further remarks that Fleischl's hæmometer will often show one hundred per cent. hæmoglobin when the patient has a very anæmic appearance.

The membrane is not only upon the mucosa but in it, and the *Bacilli diphtheriæ* are mostly buried in the membrane. Various means have been tried to dissolve the membrane so that we may get at the bacillus. Concentrated lactic acid seems better for the purpose than the dilute acid or any other means. Of course, the membrane is touched with the acid, not rubbed. The experiments of Williams (*loc. cit.*) with a concentrated solution of hydrogen dioxide may prove very valuable. Osler (*Prac. of Med.*, p. 109) says that he has not seen especially good results from the use of mercury, given either as the bichloride or as calomel, but Widerhofer's method, by inunction as if for syphilis, often gives excellent effect. I have repeatedly seen cases of laryngeal diphtheria with beginning stenosis, where the membrane was loosened by inunctions with mercurial ointment, so that the membrane could be coughed out. It must be acknowledged, however, that the diagnosis in these cases was not bacteriological. When the cough grows loose—bubbling—the inunctions should be discontinued. In general, for one inunction he uses a gramme of the Austrian *unguentum cinereum* (one part

mercury to two parts of the medium) with an equal quantity of vaseline. Our *unguentum hydrargyri* is, of course, stronger than this. To a child a year old he gives three inunctions, at intervals of a half hour in a forenoon, and he repeats the three during the afternoon, making six a day, until about fifteen inunctions in all are given. To a child two years of age eight inunctions a day can be given, up to twenty inunctions in all. The nurse may wear an old kid glove while rubbing in the mercury. I have seen salivation caused once by eight inunctions, but this happens very rarely; and it should be remarked that in cases where the children's faces are white and waxen the inunctions must be given cautiously.

Even if we had a specific for the local treatment, it could not be always practical. It is difficult to reach the throats of sick children, and if the membrane is in the trachea, as happens not infrequently, we can not reach it at all. This would be a great disadvantage in the use of Klebs's antidiphtherin if no other existed. Klebs (*Wiener med. Wochenschr.*, 1893, Nos. 25, 26, 27, and 28) worked upon the principle that any particular bacterium would grow on a culture medium only so long as the special food for that micro-organism existed there. This seems to be Pasteur's rejected "exhaustion theory." He professes to have isolated a substance from the *Bacillus diphtheriæ* which by local application will hasten the exhaustion of the special diphtheria food in a child's throat. Oscar Vulpius (*Deutsch. med. Woch.*, xx, 127) has written a very severe criticism of his method, and he shows that Professor Klebs's antidiphtherin is practically of little value. The method of preparing the antidiphtherin is indicated in the *Wiener medicinisch. Wochenschr.* (1893, No. 26), but the working formula is not given. The costly, really secret preparation is sold by Merck, of Darmstadt.

Behring, with his *Diphtherieheilserum*, or serum from animals artificially rendered proof against diphtheria, seems to have succeeded at last in getting a cure for diphtheria, but the associated bacteria yet kill the children despite his efforts. For theories concerning the action of the serum one may consult articles by H. Aronson, in the *Berlin. klin. Wochenschr.* for April 9, 1894; by Buchner, in the *Münchener med. Wochenschr.*, 1893, Nos. 24 and 25; and in the *Berlin. klin. Woch.*, 1894, No. 4, and one by Tizzoni in the *Riforma medica* for October and November, 1893. The explanation of the action of this serum is still under dispute, but the result appears as if of worth.

Behring takes a culture of the diphtheria bacillus and divides it into certain portions. One of these is left pure, the other portions are attenuated by graded quantities of iodine trichloride. A part of the weakest of these attenuations is injected into the animal from which he intends to get the immunizing serum. After some days the injection is repeated with a less weak attenuation, and so on until the animal can bear with impunity an injection of a pure culture of the bacilli strong enough to kill a control animal in about thirty-six hours. He then takes blood from the immunized animal, centrifugates the corpuscles out, and uses the serum upon diphtheria patients by hypodermic injection. One supposition concerning the action of this serum

is that an antitoxine has been formed therein from tissue-change products brought into existence by the stimulation of the diphtheria bacillus, which neutralizes the diphtheria poison. Buchner denies this antagonism. The method is, of course, only a modification of the tetanus therapy. Guinea-pigs and sheep were used at first, but now they inoculate she-goats, since P. Erlich discovered that the milk of immunized animals protected like the serum (*Deutsch. med. Woch.*, 1892, No. 18). It required much study to make out the dosage of the new medicament.

Behring (*Deutsch. med. Woch.*, 1890, No. 50) gives this method for immunizing a guinea-pig: He puts iodine trichloride, in the proportion of 1 to 500, into a culture of the diphtheria bacillus which is four weeks old, and he leaves this standing for sixteen hours. He then injects 2 c. c. of this attenuated mixture into the belly of a guinea-pig. After three weeks he injects 0.2 c. c. of a culture of the *Bacillus diphtheriæ* that has grown for four days in bouillon which has therein iodine trichloride in the proportion of 1 to 5,500. Finally, after fourteen days, he can inject pure cultures of the bacillus. The latest modification of this method is that of P. Erlich (*Deutsch. med. Woch.*, April 19, 1894), and this may be employed in experimentation where iodine trichloride is replaced by other attenuating substances. He uses old broth cultures of the bacillus, and his preservative is a half-per-cent. phenol solution. The lethal dose of this culture must be at least 0.3 to 1,000 grammes body weight. For guinea-pigs of from two hundred to three hundred grammes weight he takes 0.8 c. c. portions of the culture—i. e., about the tenfold multiple of the lethal dose for this weight—and puts into these portions graded quantities of the attenuating substance—e. g., 0.4, 0.3, 0.2 gramme. Then he takes a half of the most attenuated mixture, raises it to 4 c. c. with physiological sodium-chloride solution, and injects it into the guinea pig. If this mixture proves too strong, there will be infiltration at the place of injection on the next day. After a few days he employs a stronger mixture, and so on up to the pure culture. Behring, in his book on the blood-serum therapy, is very lucid in giving his working formula for getting immunizing serum from horses and sheep for the treatment of tetanus; but the methods for diphtheria are not quite so clear at present.

In articles upon the dosage of the serum they frequently use the expression "200 I. E." This is for two hundred *Immunitäts-Einheiten*. There are sixty of these immunity units in one cubic centimetre of the serum.

H. Kossel (Ueber d. Behandl. d. Diph. mit Diphtherieheilserum, *Zeitschrift f. Hygiene u. Infectiönskr.*, Bd. xvii, 3 h.) reports two hundred and thirty-three cases treated with the immunizing serum. Of these patients, seventy-two had been tracheotomized. Seventy-seven per cent. in all were cured, and fifty-seven per cent. of the tracheotomized children. The older the child and the earlier in the disease the serum is used, the better the results. Of seventy-eight patients treated during the first two days of their illness, ninety-seven per cent. were saved. Of course, they used the serum only where they found the Klebs-Loeffler bacillus. Children upon whom the serum was employed later in

the disease and who were not cured, seemed to have been killed by the associated bacilli, with sepsis, pneumonia, and other diseases. The injection is made with a Koch's syringe after washing the skin with alcohol and ether, and they inject the serum into the breast, or side, or thigh, and then massage the muscle. Two hundred I. E. are given the first day, and this dose is repeated on the second day, in keeping with the pulse, fever, and local symptoms. All tracheotomized patients are given four hundred I. E. as an initial dose, and this must be repeated up to even fifteen hundred I. E. in bad cases. Adults need more of the serum. There is in some cases much pain at the injection spot after a few hours, and this pain may last a day. Moreover, about two weeks after using sheep or dog serum there appears at times a very itchy urticaria-like eruption. Goat serum causes this eruption rarely, and the exanthem is not itchy. There is no rise of temperature after the injection; no reaction.

RESULTS OBTAINED FROM A NEW LOCAL TREATMENT OF PULMONARY TUBERCULOSIS.

By CARL MUND, M.D.

It is an old principle of experience that the number of remedies recommended for a disease is in inverse proportion to the usefulness and safety with which we employ them. Where we have as yet not succeeded in obtaining a *specific* for a disease, especially for one of importance and widely spread, the selection of therapeutical measures is a very large one. This certainly and in particular applies to pulmonary tuberculosis. How frequently is the physician who is not satisfied to send tubercular patients, those who are rich, to the South or some other climate, and those who are poor to a hospital simply *ut aliquid fiat*, confronted with the question as to what method he may employ in private practice for a proper treatment of these unfortunates! If at all possible, he would rather have them go to a sanitarium, but the number of such establishments is a very limited one, especially in this country. Every reputable and scientifically educated physician undoubtedly will, *a priori*, as much as possible give his patients the benefit of all expedients in hygiene and therapeutical measures—*i. e.*, rational nourishment, physical methods of massage and active movements, out-of-door life, etc. Useful, however, as these general measures may be, they are by no means sufficient to arrest or even locally affect so terrible a disease as phthisis pulmonalis.

Are we in possession of special agencies? Certainly, the unusually large number of them constitutes an *embarras de richesses* before which the physician is helplessly placed. The failure and ill-success of so many methods and means advocated by good authorities and with the greatest enthusiasm have brought about a certain disappointment and skepticism in therapeutics. At present we have arrived at a point of calm and silence like that of a lustrum ago. And now as at that time one satisfies himself in praising practical hygienic measures. Doing this, however, only proves

to be a concession of therapeutical weakness. The practitioner who, in his practice, is anxious to obtain good and *striking* results will not be contented with this. He will look around and back at the different therapeutical means which have been recommended, and that he can do with greater ease and facility inasmuch as there has at present set in a pause in the publishing of new remedies. He is able to do so with all the more leisure and objectiveness, and at once there are open to him two large different spheres of therapeutical methods—namely, (a) a general and (b) a local one.

The first of these depends upon either the ordinary medicinal treatment, which possibly should be a specific one, or on the bringing directly into the circulation therapeutical agents also possibly specific. Otherwise one has to be contented with treating symptomatically. Of late use has been made of hypodermic methods for the purpose of paralyzing partly the products of the bacteria causing the disease and partly the products formed by means of the insufficient metabolism of the diseased organism itself, both alike toxic, alike pernicious. It was by reasoning in such a way that the methods of Dr. Shurley, Dr. Gibbs, and Dr. Blake White originated—namely, the hypodermic injections of a solution of gold and manganese, etc.—a method which I have personally tried and employed. The results which I have obtained have proved to me what we can expect from this treatment. As a matter of fact, one can, after having employed Dr. Blake White's injection fluid for a certain length of time, readily notice that all those complex symptoms produced by the fermentative action of the parasites—*i. e.*, septic fever, digestive disturbances, diarrhœa, etc.—are mitigated, and in this respect the patient is greatly improved. Could we, however, expect that by such a treatment a cavity of the lung would be locally affected or healed?

Next in line the hypodermic injections of organic extracts, as advocated by Brown-Séquard—used and modified here by Hammond—rank as stimulating means of treatment. But even if the latter should accomplish what its inventors maintain—namely, improvement of the general bodily condition, increase in weight, etc.—the same thing applies itself to it as to the former—namely, that it has no specific effect on the *locus affectus*.

How about Koch's, the specific method *κατ' ἐξοχήν*? Concerning this I shall be as brief as possible, and only say here, from my standpoint as general practitioner, that, bearing in mind the uncertain results obtained from the tuberculin treatment and the danger involved in employing it, every colleague will with heart and soul agree with me in letting it alone, at least in private practice.

Of late years the medical world has, in the whole great field of internal therapeutics, gradually more and more taken a fancy to that plan of general treatment by means of which the medicinal agent is brought directly into the circulation. Therefore, to recommend local methods of treatment for a disease almost means the same as swimming against the tide. But why neglect local treatment? Does it not appear to be one of common sense? Is it not the domain of our sister in therapeutics—namely, of sur-

gery? Therefore, why not treat pulmonary tuberculosis by a surgical, a local method? Let it be well understood that when I say surgical method I do not mean surgically, for the treatment of pulmonary tuberculosis is and always will remain reserved for internal therapeutics, and if the surgeon, according to his motto that nothing is holy or sacred to his knife, has of late attempted to treat phthisis pulmonalis surgically, it has been inexcusable, so much the more as the results have been not at all successful. I am just intimating the attempts and experiments practiced here and abroad for the purpose of surgically attacking lung cavities.

Up to the time of the discovery of Koch's tuberculin the physician was more or less dependent on the use of inhalations, the results of which, however, were unsatisfactory. The methods of inhalations, which now have almost grown out of use, were based on two different principles. Either gases were inhaled, and that was the more rational method—*i. e.*, NO₂, etc.—or medicated vapors of water, alcohol, benzoin, etc. The former method was in many instances followed by comparatively good results, inasmuch as by it the circulation, etc., were somewhat improved. But it *only apparently* was a local method, as the *locus affectus* was not reached by the gases, for the diseased parts of the lung, and with them the parts in their immediate neighborhood, take little or no part in the act of respiration.

Concerning the inhalations of medicated vapors—*i. e.*, medicated steam—it is well known that they are extremely useful and indispensable in the treatment of the various diseases of the nose and throat, but that is their limit. It has been proved experimentally that all those fluids which served as vehicles for keeping the different medicinal agents that were to be inhaled in solution—*i. e.*, water when used in form of steam—are condensed and precipitated as soon as they reach the upper air-passages, which continually, like all the air-passages, are saturated with moisture. By this means, therefore, we can not expect to reach and therapeutically affect the diseased parts of the lung.

In searching for a good and rational method I found a special therapy of insufflation which had been described and published about five years ago in the *New York Medical Journal* by Dr. Loebinger, a physician of this city. After having carefully read his article, in which the author reports such gratifying results, I made up my mind to give his method a trial. I may here anticipate that the results which I obtained were very satisfactory, I should even like to say brilliant. It really seems peculiar to me that such a good thing has not as yet attracted the attention of the medical fraternity, for with the exception of a few medical reviews and encyclopædias—Hare's excellent *System of Therapeutics* also mentions it—I have failed to find anything about it in medical literature. The main cause for the author's publications having been overlooked probably was that they appeared at the exciting time when the medical world was caught in a really fearful manner by the *furor tuberculinus Kochii*. After having had such excellent results with this method of treatment, which, by the way, is a very handy one for private practice, being especially adapted for office work, I feel it almost a credit to myself

to herewith bring it into publicity and thus save it from the oblivion into which it had fallen.

The treatment is free from any internal medication, and consists of an insufflation into the lungs of a peculiar powder mixture. Insufflations are extensively used for the treatment of diseases of the larynx, but applying them to the lungs for the treatment of pulmonary tuberculosis certainly is a new and novel method. At once there arise two questions which *a priori* have to be answered—namely (a), whether the insufflated powder really is capable of reaching the lung tissue, and (b) whether it does not irritate and thus act injuriously on the upper air-passages. Then there remains to be discussed whether and to what extent a healing effect is induced.

The first question is readily and affirmatively answered by the following facts: At almost every autopsy we can, in examining the lungs, detect that the inspired atmosphere has carried along with it, even into the deepest lung tissue, all kinds of dust with which it was impregnated, and that for this reason and from this fact the lungs of city people, who live in an atmosphere very rich in dust, show a characteristic appearance. Men who during their work are exposed to an extraordinary and particularly dusty atmosphere show in their lungs certain chronic changes which differ a great deal from the appearances of the lungs which were exposed to street dust, and they constitute a series of diseases known as dust-inhalation diseases. These, of course, are all vulgar facts known to every physician, but, inasmuch as I have repeatedly been asked by colleagues whether the insufflated powder reached the tissue of the lung into which it was directed, I may mention the following: Ever since Zenker's classical work in the German medical *Archiv*, xiii, it has been known as an indisputable fact that the lung pigments found in cases of anthracosis, siderosis, and chalicosis pulmonum do not, as was formerly believed, originate within the blood, but that the corpuscular elements serving as a foundation for these pigments are conveyed with the inspired air not only into the alveoli of the lungs, but even into the interstitial tissue and into the bronchial glands. This may serve as a hint pointing to the actual possibility of therapeutically affecting tubercular foci which are scattered about in different parts of the lung tissue even somewhat distant from the air-passages proper. With what other form of local therapy could one expect to reach the bronchial glands which, as has in particular been stated by Dr. Prudden, are the terminal point of tubercular disease?

A further point is that the changes brought about by the action of dust consist in chronic inflammation ending in either induration or gradual destruction and necrosis followed by cicatrization of the respective lung tissue. Is this not the aim we have in treating the destructions produced by the action of the tubercle bacillus?

Finally, many authors have observed that the majority of men exposed to the dust-inhalation diseases are possessed of a certain immunity from pulmonary tuberculosis; *ad exemplum*, men employed in coal mines (Moll, Pick, Morgan) and especially those working in lime pits (Mougont)—another point worthy of being remembered.

The former methods of insufflation were defective ones. It is not only the material composing the insufflation powder on which the treatment depends—the main thing lies in a proper means by which we can infallibly, with every application, reach the *locus affectus*, or at least approach it as closely as possible.

Erasmus Darwin, and later Trousseau and Mortell, employed special apparatuses for insufflations. The only really useful and rational device for this purpose, however, was obtained by Dr. Loebinger, whose method I shall now describe. In the first place, it is not sufficient to simply make a general diagnosis of pulmonary tuberculosis, as is so frequently done, but it is absolutely necessary to examine the lungs very carefully in order to locate the diseased foci as accurately as possible. A mere inspection will usually reveal the affected side—namely, the one which remains inactive and almost motionless, at least in part, during the act of respiration. This usually also is the side upon which the patients declare that they are unable to lie or rest. Should we now subject the patient, having him in a general upright position, to an insufflation, the insufflated powder, following the current of inspiration, would be carried into the sound lung. To avoid this the patient has to be placed in such a position that the upper half of the body leans over toward the sound side. If in this position the patient breathes, at the same time elevating the arm and shoulder of the affected side, the current of inspiration, and with it the insufflated powder safely, and with the exclusion of the compressed bronchial lumen of the sound side, is conveyed into the affected lung, which, under ordinary circumstances, takes no active part in respiration. Further modifications of the position of the patient depend upon whether the *locus affectus* to be treated is in the anterior or in the posterior aspect of the thorax, whether at the apex or at the base of the lung. Accordingly the affected side of the thorax is bent anteriorly, or posteriorly, or upward, and thus rendered accessible to the current of the insufflated powder. In order to open the glottis at a given moment, the patient takes a somewhat rapid, deep, and sipping inspiration, to be followed by a slower and longer expiration. The tongue is drawn forward as in laryngoscopy. A more detailed description of the treatment is to be found in the original publications. The patient has to be trained to a certain extent before he can be properly treated, and this training depends upon the individual intelligence and dexterity of the patient. It is evident that the lung gymnastics thus exercised is very useful and beneficial—a fact which is noticeable even after a short time of treatment by the increase of the coefficient of the respiratory expansion. There are a number of patients in whom at the beginning we do not succeed in having the insufflated powder properly pass the glottis and the bifurcation of the trachea; but I have as yet not noticed any suffocative or other disagreeable signs from the powder remaining in the larynx or trachea; even the cough irritation in patients affected with tuberculosis of the larynx seemed not to be increased by it. The quantity of the powder to be used at the beginning certainly ought to be reduced to a minimum. One can very easily fix and locate that part of the lung at which the insufflated

powder has arrived. Before I specify how it is proved that this really is so, I should like to talk about the *modus operandi* of the powder itself.

The powder as such only serves as a vehicle for the ethereal oils with which it is mixed. These are contained in it in a proportion of 1 to 10. Favored by the heat of the body, they evaporate within the lungs, and are then imbibed in full proportion from the neighboring branches of the respiratory tree. This momentum is the kernel of the treatment, which by the author is most happily termed *internal inhalation*. In this the method differs from other plans of insufflation.

The ethereal oils are very highly spoken of by all those authors who have experimented with them, in regard both to their germicidal and even to their specific antitubercular properties. I may simply mention the favorable results which Landerer obtained in using cinnamic acid in cases of articular tuberculosis, also the good effects of inhalations of oil of peppermint and menthol in tuberculosis of the larynx, etc., and their innoxiousness. Besides this, they exercise a peculiar kind of irritation on living tissue, stimulating it to a reproductive action. They also have a physiological action and effect on the endings of the vagus in the lungs, inducing a strengthened beneficial respiration.

The powder itself acts antiseptically and favors the calcification of the cheesy and tubercular foci by means of insoluble calcium salts.

Now that, as a matter of fact, the insufflated powder has reached deeply into the lung is readily observed subjectively: In case the powder has failed to pass the larynx and trachea, the patients will inform us that they feel a mild scratching or burning sensation at those parts of the respiratory tract. On the other hand, when the insufflated powder has safely passed the glottis and trachea, the patient will at once point out to us the part of the thorax in which he feels the presence of the powder and ethereal oils; and in this case he notices nothing whatsoever in the larynx or trachea, while at the particular part in the lung he experiences a peculiar sensation, characterized at first as a burning sensation over a limited area, which somewhat later is followed by a strongly cooling feeling, gradually spreading over a larger surface within the thorax. The patients declare that they have an agreeably refreshing sensation within the lung for hours after the application of the powder. Objectively we are able by means of auscultation to demonstrate the presence of the powder, etc., in the different parts of the lung. Where, for example, before we found numerous and coarse râles, we now, immediately after the insufflation, notice peculiar dry and rubbing sounds similar to those of pleuritis sicca. At times there follows an entire absence of auscultatory sounds. The insufflation into the midst of the *locus affectus* is most easily effected in cases of cavities which are in direct connection with the larger bronchial branches. As in every other class of diseases, so also in this one, there are certain cases especially favorable for treatment. The cases most favorable are those in which only one side is affected, and the less favorable are those showing rather numerous disseminated foci on both sides of the thorax. Finally, we have cases for which the treatment

is contraindicated—namely, in patients who are continually bed-ridden; patients with rapid loss of strength, having a high temperature; patients who—that is, within the preceding four weeks—have had hæmoptysis. If we wish to obtain lasting results we must also exclude from the treatment patients who at the same time are suffering from complications, such as intestinal tuberculosis, renal affections, endocarditis, etc.

The duration of the treatment depends upon the severity of the case, the average being about three months. The first signs of improvement generally appear very rapidly. I may now be allowed to report a few of my cases:

CASE I.—Mr. S., German, thirty-two years of age, nurse by profession. Since three years, after an attack of influenza, patient presented symptoms of pulmonary disease—viz., repeated attacks of hæmoptysis, considerable and very distressing cough, loss of flesh and strength, etc. Following the advice of his physician, he accompanied another patient to the South, where, after having remained a few months, he improved somewhat. The severity of his annoying cough, however, remained the same. After this he again had several mild attacks of hæmoptysis, which at each time rendered him unfit for work for a few weeks. When I saw the patient for the first time his main symptom was a very severe and most distressing dry cough, which every morning was followed by a copious expectoration. During the three years of his illness he had undergone different methods of treatment, from which he had received no improvement whatsoever. He had also been treated with Koch's tuberculin with the following results: At first the cough considerably decreased in frequency and severity, but after a short time it reappeared. At the same time there now appeared signs of fever, from which before the patient had been entirely free. He then abandoned this plan of treatment. His condition remained unchanged for the next few months. The following were his symptoms when he presented himself to me: Severe cough, anorexia, marked anæmia, great general weakness, so that he was not able to work at all, etc. Physical examination revealed an affection of the right upper lobe. The percussion note over the affected side was dull above the clavicle, tympanitic below down as far as the third intercostal space, and also gave the signs of Wintrich's change of sound, indicating a cavity. Auscultation gave bronchial breathing above and loudly ringing râles below. The physical signs of the left side were negative anteriorly, while posteriorly over both sides there were heard râles indicative of a catarrhal bronchitis. The sputum contained tubercle bacilli in small number.

The patient was now subjected to the local method of treatment. After having placed him in that position in which the upper half of the body leaned over to the left, the insufflation of the powder was easily accomplished. Even after a few applications the patient declared that he felt much better and stronger. After a few days the troublesome cough decreased considerably and soon ceased entirely. The patient, however, still raised a large quantity of sputum during the morning, which came to be much thinner, watery like, and was expectorated more easily. After two weeks of treatment, the patient was again examined and the following conditions were found: The tympanitic resonance over the cavity had changed into a modified dullness. Auscultation gave slight friction sounds. The cavity apparently was beginning to undergo a process of consolidation. The signs of bronchial catarrh posteriorly had entirely disappeared. The patient so far had gained four pounds in weight. He was treated six weeks longer, and then discharged as cured. He had gained twelve pounds in all;

was much stronger and able to work; and the cough had entirely disappeared. He still, in the morning, expectorated a small quantity of watery sputum, which, however, was free from tubercle bacilli. The objective symptoms were the same as they had been a few weeks after the beginning of the treatment.

CASE II.—Mrs. S., thirty-six years of age, had been suffering from lung disease for two years. She had lost twenty pounds in weight; complained of general weakness, anorexia, dyspnoea, etc. Her cough was so distressing and so annoying that her family were frequently robbed of their night's rest by it. She also had suffered from mild attacks of hæmoptysis, had morning and afternoon fever, night sweats, and pains in the chest. All treatment so far had failed to relieve her. Even the hypodermic treatment, according to the method of Shurley and Gibbs, had had no effect at all on her disease.

Status Præsens.—Patient well built and comparatively muscular. Physical signs. Both sides of the thorax affected, the right side below the clavicle showing a cavity; the left side giving dullness on percussion from the apex down to the second intercostal space, below which is normal pulmonary resonance, which rather exceeds the normal limits below (compensatory emphysema). The sputum contained tubercle bacilli. Patient now subjected to the local method of treatment. At first the right and later the left side treated. The duration of treatment was two months and a half. The following are the results: The cough entirely ceased after two weeks of treatment. Later, however, the patient had repeated attacks of cough of less severity, and each time as a result of catching cold (according to her own statement). No more night sweats; appetite improved; weight of body the same as before her illness; sputum free from tubercle bacilli. I saw her again nine months later, and found her condition excellent, the same as when she had been dismissed from the treatment. The only thing she complained of was that she had experienced a relapse of cough and pain in the chest, both of which, however, had again disappeared without medical interference.

CASE III.—Mr. S., forty-four years of age, had been ill for a year and a half, having suffered from bronchial and gastric catarrh before that time. He was a drinker. The first thing he noticed wrong with him, a year and a half ago, was a severe attack of hæmoptysis, to which he almost succumbed. The same thing happened several times more during the next half year, so that the patient was very low. After that, for the next year, he had no other attack.

Status Præsens.—Mere inspection shows a retraction of the size of the palm of a hand on the right side below the clavicle, this retraction deepening still more during each inspiration. Auscultation and percussion give the clear signs of a cavity of the size of a fist. On the left side there is emphysema. The cough is very severe and accompanied with profuse expectoration. The sputum contains pus cells, elastic fibers, and tubercle bacilli. He was subjected to the local treatment for six weeks, with the following results: Gain in weight, four pounds; appetite somewhat improved; can breathe and sleep much better; cough reduced to a minimum; sputum still contains tubercle bacilli and pus cells, but no elastic fibers. Auscultation: Clear vesicular breathing on the left side; no more mucous râles. On the right side, above the cavity, there now are dry, peculiarly rattling sounds, instead of ringing râles. The percussion note is the same as it was before the treatment—namely, metallic-tympanitic resonance, etc. Apparently no change of the cavity, as regards consolidation, etc., has taken place, and, inasmuch as the healing of so large a cavity can hardly be expected, I am contented with the amount of improvement which so far has taken place.

CASE IV.—Mr. B., thirty-nine years of age, had been em-

ployed in a lumber yard. During a year's illness he had lost twenty-five pounds in weight, and now was so weak that he could hardly walk. His cough was very severe. The sputum was raised with difficulty, so that the patient frequently, while making efforts to raise it, was seized with attacks of vomiting. He was unable to rest on the right side of his body.

Physical Examination.—Both sides affected. On the right side there is found an induration reaching down as far as the upper border of the fourth rib. The left side shows induration from the apex down to the second intercostal space. The sputum contains tubercle bacilli. Also in this case the patient, after a very short time of treatment (by means of the local method), was remarkably improved. Duration of treatment, ten weeks, with the following results: Twelve pounds' gain in weight; cough reduced to a minimum. He can now again lie and rest on his right side all night. The dullness on percussion is considerably lessened on both sides. Increase of expansion, four centimetres on the right and two centimetres on the left side. Sputum free from tubercle bacilli. Patient again able to work.

CASE V.—Mr. F., engineer, twenty-eight years of age, ill for one year, before which time he had suffered now and then from nasal and laryngeal catarrh. There had been rapid loss of flesh and strength. The chief symptoms were fever, night sweats, cough, etc.

Physical Examination.—Considerable destruction of the right lung; consolidation in the left upper lobe. Hypertrophy of the heart. Sputum viscid, expectorated with difficulty, contains tubercle bacilli. On examination of the larynx there is found a congestion of both arytaenoid cartilages, but no tubercular ulcers.

Duration of treatment, two months, during which the patient slowly but continually improved. Disappearance of the dyspnoea, fever, and night sweats. Cough considerably decreased. Expectoration at the beginning of the treatment increased, but later scanty. Physical examination now showed the following: On the right side, consolidation; on the left side, a clearing of the dullness. On both sides clear, partly vesicular, partly bronchial breathing, without râles. I saw the patient again eight months later, and found his general condition good. The cough, which never had entirely ceased, is still accompanied with expectoration, but the sputum is free from tubercle bacilli.

308 EAST SIXTY-SECOND STREET.

CREOSOTE

IN THE TREATMENT OF RECTAL TUBERCULOSIS AND SOME OTHER AFFECTIONS FIFTY YEARS AGO.

BY WILLIAM BODENHAMER, M. D., LL. D.,
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THE writer having lately read with great interest a number of excellent recent productions upon the therapeutical value of creosote in the treatment of pulmonary tuberculosis, will on this occasion add his own experience of its value, obtained fifty years ago, in the treatment of rectal tuberculosis, either as a primary disease of the rectum itself, or as coexisting with either intestinal or with pulmonary tuberculosis. But in presenting his early experience in the use of creosote, the writer will not dwell long upon the excellent therapeutical value of it, which is now so well known and appreciated, nor upon the present varied forms

used in the employment of it as practiced by able and distinguished men, but will speak more fully of the particular, the unusual, and the successful method which he himself adopted in its administration at that early period. The recital of this, however, may not prove interesting to some, in this rapidly progressive and revolutionary age, who would prefer to look forward in anticipation of what was to come, rather than to look backward to what had taken place half a century ago; but to retrospect occasionally may prove beneficial, and certainly can harm no one.

It is well known that creosote is not now for the first time employed as a curative agent in the treatment of phthisis pulmonalis, for more than half a century ago it was occasionally used for that purpose with more or less success by eminent men in Germany, in France, and in England; but, like many other valuable remedies, it has had its ups and its downs in alternate succession, giving place sometimes to inferior or to noiseful and worse than worthless remedies. Since 1876, however, it has had a regular and a decidedly upward tendency, which it firmly maintains, as is evidenced by the numerous and the distinguished advocates now engaged in its employment in the treatment of tubercular phthisis, and also by the very great abundance of the literature now extant upon the subject.

From all that is now positively known of the therapeutical properties of creosote, it would not, in the opinion of the writer, be considered exaggeration to affirm that in this agent we possess, if not a specific, yet a highly valuable antiseptic—astrigent, styptic, anæsthetic or analgesic, escharotic, vermicide—and in the opinion of some, a specific microbicide. We thus perceive how this valuable remedy may fulfill many and various indications in the treatment of diseases.

It may here be remarked that the creosote of the present day is not as pure as it formerly was, but consists more or less of carbolic acid; but the success in its use will always depend upon its absolute purity. The most reliable creosote is that which is obtained from beechwood. It may just here be proper to say that the term creosote is derived from the Greek, *κρέας*, flesh; and *σώζειν*, to preserve.

The writer's attention was first called to the then new remedy creosote in 1844, in Louisville, Ky., by being repeatedly urged to test its use by the advice and recommendation of Mr. Samuel Yenawine, a good and an excellent apothecary of that city, who seemed to have been well informed through his *confrères* in Germany of all that was then known of the new agent.

The writer accordingly then commenced the employment of creosote with good results in several affections, but more especially in rectal tuberculosis. In this disease the creosote, combined with a simple excipient, was administered *per rectum*, for by this channel the remedy is applied directly to the morbid parts, where it produces its immediate local effects, and subsequently its remote and general effects; and furthermore, the writer has also long since been aware that the rectum tolerates much larger doses of creosote than the stomach, which fact of itself is a very important item in this connection, and also by this channel the

great repugnance of patients generally to take this remedy by mouth, on account of its pungent and disgusting taste and odor, is entirely obviated; for we should always consider that in the employment of any official remedy it is not only necessary and important to know in what case, in what dose, in what form, but also by what channel it should be administered. Indeed, we can not, therefore, too strongly urge upon the profession the great benefit to be derived from the injection of this remedy by the rectum or the colon, which in the hands of the writer has produced such unvarying good results, and to the use of which no valid objections can be successfully urged.

Now, since it is generally admitted that the stomach will not tolerate the creosote in sufficiently large doses to produce decided and satisfactory effects upon the disease, almost all conceivable channels, as substitutes, have been employed by able authorities since 1876, to introduce this remedy into the system otherwise than by the stomach, such as inhalation by the respiratory passages, by hypodermic injections, by intrapulmonary injections, by intratracheal injections, by rectal injections, by laryngeal applications, etc. But the very important question concerning the best channel or channels by which it should be introduced into the system in pulmonary tuberculosis remains as yet, so far as the knowledge of the writer extends, unanswered and undecided by the majority of these authorities. As regards the inhalation of the remedy, it is well known that this method has frequently been employed with but very partial success, and can not therefore be relied upon alone in tubercular phthisis, except in the incipient or very early stage of the disease. But might it not be employed with advantage as an adjuvant measure in the advanced stage of the disease if adopted conjointly with the administration of the same remedy, either *per os* or *per rectum*. The disease might thus be the more effectually reached by these two conjoint methods of administration.

But right in the midst of these several substitutes, as methods or channels of administering creosote, exclusive of the stomach, comes now the announcement that a complete substitute for the original creosote is found in the new form, *creosote carbonate*. This product is said to be prepared from the best beech-tar creosote, and contains over ninety per cent. of that article. It is further declared to be taken without the least repugnance, and agrees well with the most sensitive patients, the stomach never rebelling even when taken in large doses. It has been employed by two French physicians with marked success, who say that it can be taken in almost any dose by the most delicate stomach, and is destined to replace the original creosote in the treatment of pulmonary tuberculosis. It is sincerely to be hoped that these statements may be verified.

Now, as regards the writer himself, he has always been an advocate of rectal medication under certain conditions and circumstances, and has demonstrated many years ago that medicine properly prepared may be introduced into the rectum or into the colon with great ease, with entire safety, and with prompt and decided effect; that medicines thus administered have the decided advantage of those which are given *per os* by being transmitted simul-

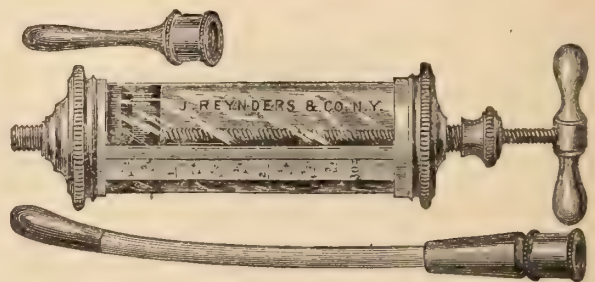
taneously into both the portal and the systemic circulation and of producing their immediate action upon the organs which they specifically affect; that through the rectal medium the most decided therapeutical impressions may be made upon the various important viscera of the chest, abdomen, and pelvis, as is plainly set forth in the writer's essay on Rectal Medication, published in 1878.

If creosote in proper strength could easily and without danger be directly applied to the diseased portions of the lungs in tubercular phthisis, and there produce its full local effect, as it does in the same disease in the rectum, we would have much stronger hopes of saving greatly increased numbers of such cases than by depending alone upon the remote or general effect of the remedy.

The writer here takes pleasure in recording the fact that the able French physician, M. Audeoud, in a very recent valuable monograph upon this subject, demonstrates most fully and conclusively that the rectum is the most eligible organ to which this remedy—creosote—should be addressed in the treatment of pulmonary tuberculosis (*Traitement de la tuberculose pulmonaire par la créosote administrée par voie rectale*).

It is worthy of observation here that as a general rule, according to the experience of the writer, the creosote even in much larger doses is better borne and more easily retained in the colon than in the rectum; consequently, should the latter organ, from idiosyncrasy or some unusual cause, not be in a condition to tolerate the creosote in sufficiently large quantities, it can be introduced through and beyond the rectum into the colon by means of a recto-colonic tube attached to a small syringe, or by the use of the writer's graduated three-ounce syringe, having a screw piston and a rubber tube ten inches long. The rectum or the colon will tolerate the injection much better, and it will not excite peristalsis when passed slowly from the syringe, as it does by this instrument, for the sudden distention of or the pressure on the parietes of the rectum or colon may, by the force of the common syringe, tend to induce the *visus defæcans*.

The following figure represents the syringe:



Before administering the remedy *per rectum* that organ, if filled with fæces, should be emptied by an enema of warm water so as not to foul the medicine or cause it to be too soon rejected. The advice to empty the rectum is, however, superfluous with regard to those who declare and teach that the rectum is always empty except at the moment when the fæces are rapidly passing through it, and that it is in no sense a temporary receptacle for fæcal matter, etc. They thus degrade this richly endowed and equipped organ

by converting it into a mere faucet, or rapid transit, as it were, for the transmission or elimination of the residuum of digestion. After the injection of the remedy, should there be a strong or an almost irresistible desire to pass it, as is the case sometimes when there exists an exquisitely irritable state of the organ, a sponge or a fold of cloth dipped in hot water and firmly pressed up against the anus and held there for a few minutes will generally appease the desire and enable the patient to retain the injection.

The writer will now repeat some remarks which he made and published a number of years ago upon the nature, pathology, and diagnosis of tubercular disease of the rectum.

Rectal Tuberculosis.—It is said that tubercles in the lungs are essential to their existence in other organs—that is, that they are always developed in the lungs first. But this is not always so, for it is well known that they are often found in the different parts of the body when their existence could not be diagnosticated in the lungs. The writer has seen and treated a number of cases of rectal tuberculosis as a purely primary affection. In these instances the disease seemed to have been developed in the rectum first; as a general rule, however, whenever the affection is developed in any one organ or part, it is liable to invade all others; it doubtless, however, originates in the lungs in the majority of instances.

Rectal tuberculosis requires prompt and energetic treatment, or it will speedily result in ulceration, in abscess, and fistula, especially if in the inferior portion of the rectum. When it extends into the descending colon it is commonly called consumption of the bowels, and is often attended by many of the symptoms of tubercular phthisis, which it very much simulates, and in which it ultimately terminates, unless timely arrested. In this instance the disease originates in the rectum, but subsequently terminates in the lungs, the rectal disease having been the primary affection. On the contrary, however, it is well known that in protracted phthisis pulmonalis the rectum becomes greatly attenuated, all its coats being thinned and wasted, and sooner or later diarrhoea sets in, and patches of ulceration of the mucous membrane take place. These ulcers vary in form and size, being mostly small, circular depressions in the mucous membrane, the edges of which are generally rough or ragged. When these ulcers occur in the inferior portion of the rectum, and between the internal and external sphincters of the anus, they are almost certain to result in abscess and fistula. These ulcerations of the rectum are by no means uncommon in phthisical subjects, and are, with their concomitants, abscess and fistula, one of the complications of phthisis. Here the primary disease is phthisis, and the ulceration, the abscess, or the fistula, whichever obtains, is the effect or sequence of it. There are, however, other ulcerations of the rectum, almost identical in character with those already described, which are independent of phthisis, being the result of other chronic affections—as the ulcers which are known to occur in the last stages of some low fevers, in chronic dysentery and diarrhoea, or in persons of a lax, lymphatic, or scrofulous constitution. Such ulcers, if not cured, are liable to result in rectal stricture, or in

anal abscess or fistula, and ultimately in phthisis in those predisposed to it.

Diagnosis.—Some of the diseases of the pelvis or anal region, especially those which appear in the form of chronic, cold, symptomatic, critical, or constitutional abscesses, as they are severally so designated by different authors, are sometimes attended, in weak and emaciated subjects, by hectic fever, night sweats, cough, expectoration, and great physical and mental depression. Such cases are sometimes diagnosticated as phthisis when at least no organic disease of the lungs really exists. In such the abscess or the fistula, if either exists, is let alone, and is allowed to reduce the vital powers of the patient by keeping up a copious and constant drain upon the vascular system and a continued irritation of the nervous system, respectively, so that in course of time the lungs also become seriously affected. This is no imaginary occurrence, as the writer could here report several such cases which came under his own observation.

Chronic Bronchitis.—Chronic bronchial catarrh sometimes simulates tuberculous phthisis so closely that it is well calculated to deceive, especially if attended, as it sometimes is, by persistent cough, expectoration, loss of strength and color, shortness of breath, and in some cases following influenza, hectic fever, night sweats, and diarrhoea. The writer has successfully treated a number of cases of anal abscess and of anal fistula which were associated with chronic bronchial catarrh, and which had been previously pronounced confirmed phthisis, and all treatment of the abscess or the fistula interdicted on penalty of speedy death from phthisis. A correct diagnosis in all such cases is of the highest importance, and should be sought for early before ulceration and other serious complications occur, so that the treatment may prevent these; but a minute and careful physical exploration of the chest, so far as pulmonary tuberculosis is concerned, will never fail to give the correct diagnosis and to disclose the true nature of the case. It is obvious, however, that the diagnosis of lung tuberculosis is much less difficult to obtain than that of rectal tuberculosis.

New Methods of Diagnostivating Tuberculosis.—The writer deems it important here to state that the old and ordinary method of obtaining the diagnosis of tubercular disease, which he had adopted and practiced many years ago, as is very briefly shown above, is now declared to be obsolete, and that it is completely substituted by other methods, pre eminently by that of Koch's bacillus; for it is conceded that the bacillus of Koch is present in every case of tuberculosis; hence it constitutes the pathognomonic evidence of that disease, regardless, however, of the disputed question, whether the bacillus is either the cause, the mere attendant, or the effect of the disease.

This new method of Koch is demonstrated by a bacteriological examination. To establish or demonstrate the fact of the presence or the absence of Koch's bacillus in rectal or in intestinal tuberculosis, the excretions or the discharges from the morbid parts must be subjected to the same methods which are employed in the examination of the sputum in pulmonary tuberculosis. This method

of diagnosis should always be employed in doubtful cases.

Dr. Watkins, of New York, has discovered another method of diagnosing tuberculosis, which may ultimately supersede that of Koch's bacillus. He says: The third blood-corpuscle is a pathological product, and is the indication of tuberculosis and a valuable means of diagnosing that disease; and he further asserts that tuberculosis in any form is impossible without its presence in the blood, and that it makes its appearance long before the cough or before any of the formerly recognized signs and symptoms appear, and is always the forerunner of tuberculosis; hence it is his pathognomonic evidence of that disease or his *sine qua non*. This method, says Dr. Watkins, can be tested by any one with the blood of the person and a good microscope. (The Value of the Third Blood-corpuscle in Tuberculosis. In the *Medical Record*, July 14, 1894, p. 41.)

From what Dr. Watkins says of his method of tubercular diagnosis, it would be valuable also in detecting the presence of what some call *latent* consumption, and also in discovering the entire absence of consumption.

But independent of Koch's bacillus and the third blood-corpuscle of Dr. Watkins, the writer is still of the opinion that by a minute and careful observation of all the circumstances attending a case, and a strict analysis of all the usual and peculiar phenomena which accompany tuberculosis in any part of the body, especially in such cases in which the clinical symptoms all point to a tubercular process, the true diagnosis in the majority of cases may most certainly be obtained by an expert or a good diagnostician, and that, too, in much less time and with much less inconvenience and expense.

It may be observed here that the discovery of the bacillus of tuberculosis by Koch and the many daily discoveries by others, together with the experimental practice of medicine of the present day, mark a distinct era in the history of our art, and are a positive evidence of the revolution which is now most surely taking place in medicine. But the result consequent upon such a disturbing and fluctuating element as a medical revolution causes by its sudden kaleidoscopic changes in the theory and the practice of medicine and surgery, and especially in that of *materia medica*, imposes upon the conscientious and busy practitioner a constant, most difficult, and laborious task, which requires on his part diligence and careful scrutiny in order to enable him to keep well abreast of these many and varied innovations. He must, therefore, keep wide awake and on the *qui vive*, lest he fall behind the times or beneath the feet of the innovators or revolutionists; he must not despond, however, but take courage and try to console himself with the pleasing reflection that inasmuch as medicine is both an experimental and a progressive art, substantial benefit and ultimate progress may yet be the result of all this present commotion in it; he must therefore bear the present evils patiently, and be careful not to attempt to arrest or to hinder innovation, when it is plainly seen that it evidently tends to enlarge, to improve, to simplify, and to

advance the science or the art, ever remembering that innovation is the vehicle in which medicine is carried from one degree of excellence to another.

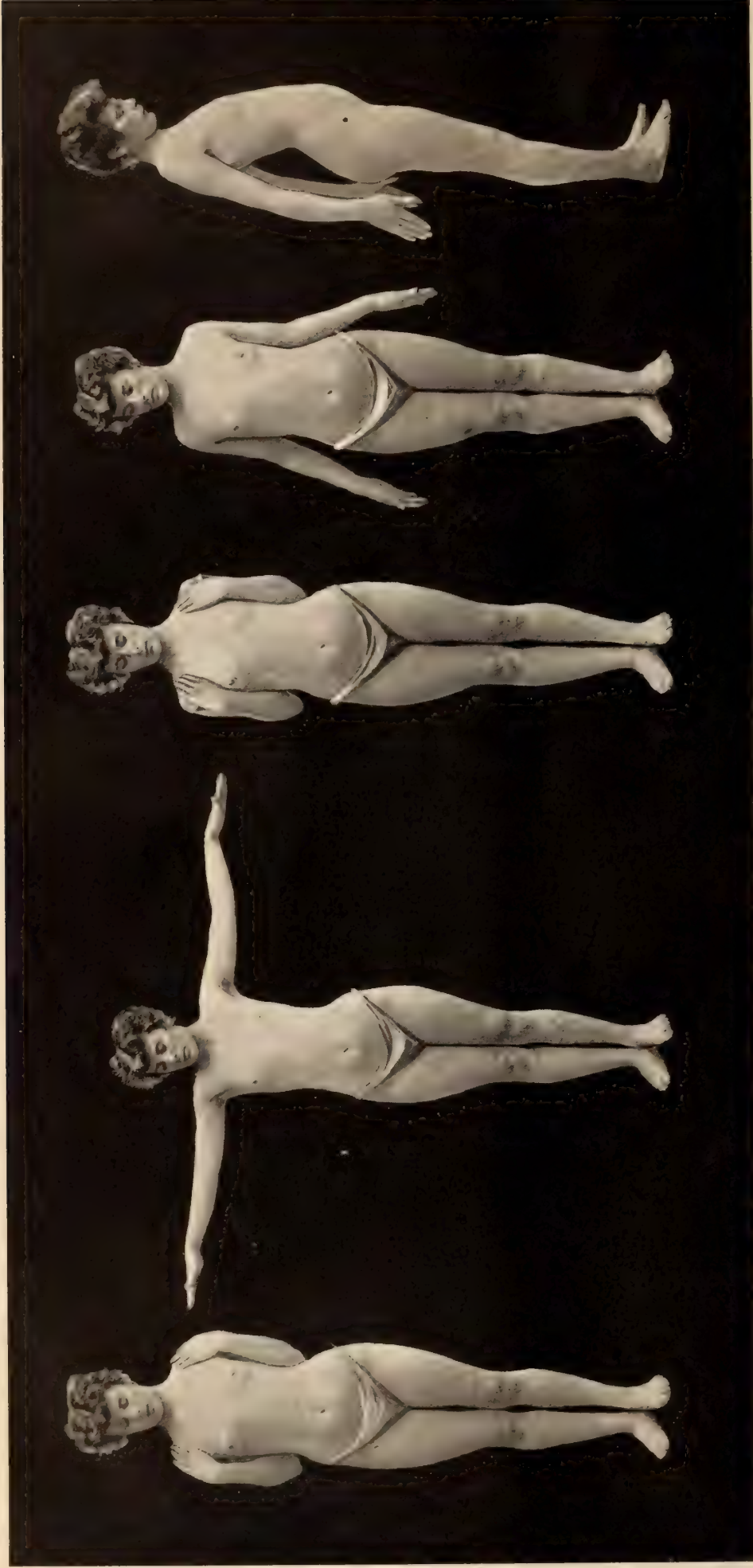
The Treatment.—Rectal tuberculosis as a primary disease may easily be cured in any of its stages by the use of creosote applied directly to the morbid parts, by injecting the properly prepared remedy into the rectum. The treatment should if possible be always commenced at an early stage of the disease, especially before ulceration takes place; for such ulcers, when situated within the limits of the anal sphincters, are often very painful, like anal fissure, and are very liable to result in abscess and fistula, which would prove very pernicious sequelæ, but not hopelessly so, for the writer has successfully treated a number of such cases, and some in which the disease extended up some considerable distance into the descending colon, including its sigmoid flexure. Such cases fifty years ago, on account of the loss of flesh and strength, the hectic fever, the night sweats, etc., which more or less usually attend this affection, were generally considered to be the effect or the result of pulmonary tuberculosis, or in some way associated with it, and not as a primary disease of the rectum itself; hence the disease, with any of its attendants—ulceration, abscess, or fistula—was regarded in the light of a natural emunc-tory or a derivative, and its treatment strictly prohibited. The following is one of the early prescriptions which the writer used in the treatment of tuberculosis of the rectum and colon:

℞ Ol. creosoti, }
Ol. amygdalæ, } āā 3 ij;
Tinct. opii..... 3 j;
Pulv. acaciæ..... 3 iv;
Aq. camphoræ..... 3 viij.

Fiat mist.

The prescription was always changed when necessary, to correspond to the nature of the case, by either augmenting or diminishing the dose of the mixture, each ounce of which contains seven minims and a half of creosote, and either a third, a half, or an ounce of the mixture, according to circumstances, was injected into the rectum or the colon every night on retiring and every morning immediately after evacuating the bowels, for it was considered important to keep the diseased parts and the system constantly under the influence of the remedy. The good effects of such a course were generally manifested in ten or twelve days, for the rapidity of the action of the creosote is very marvelous; a decided amelioration would be noticed in the improved appearance and the feelings of the patient, and also in regard to a decided decrease of the morbid discharges and the changed and healthy aspect of the diseased mucous membrane of the rectum.

The writer has long since known and demonstrated the value of creosote in some other diseases besides tuberculosis; indeed it has, as before remarked, a wide sphere of usefulness in other directions. He found it invaluable many years ago in the treatment of obstinate chronic catarrh or ulceration of the rectum, administered according to the following prescription:



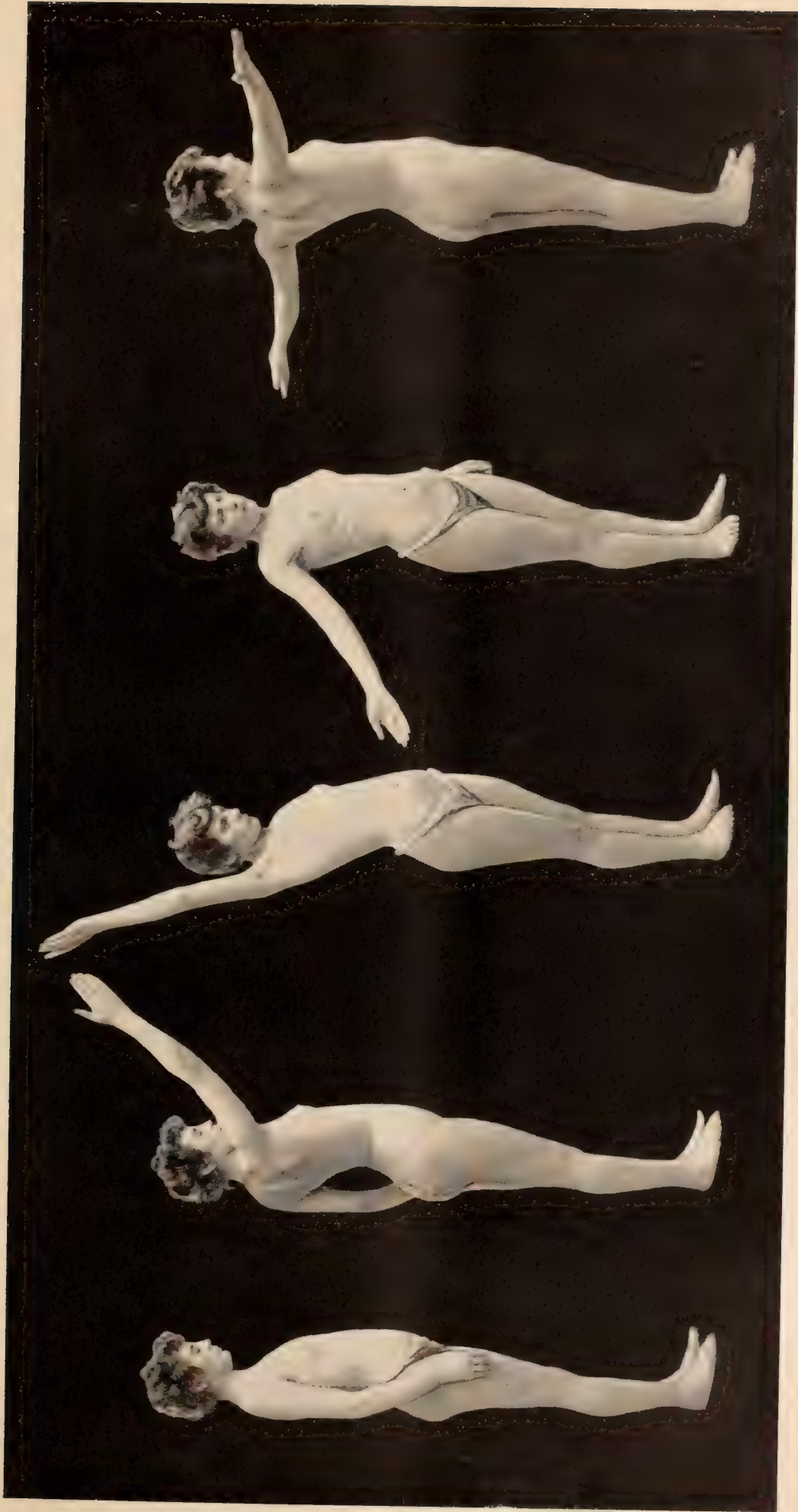
First movement.
Flex and rotate arms, fingers to
shoulder, elbows at side.

Second movement.
Extend arms to side, palms down.

Third movement.
Flex and rotate arms, fingers to
shoulder, elbows at side.

Fourth movement—front and side view.
Hands down and back, extend. Palms midway.

EXERCISE A.

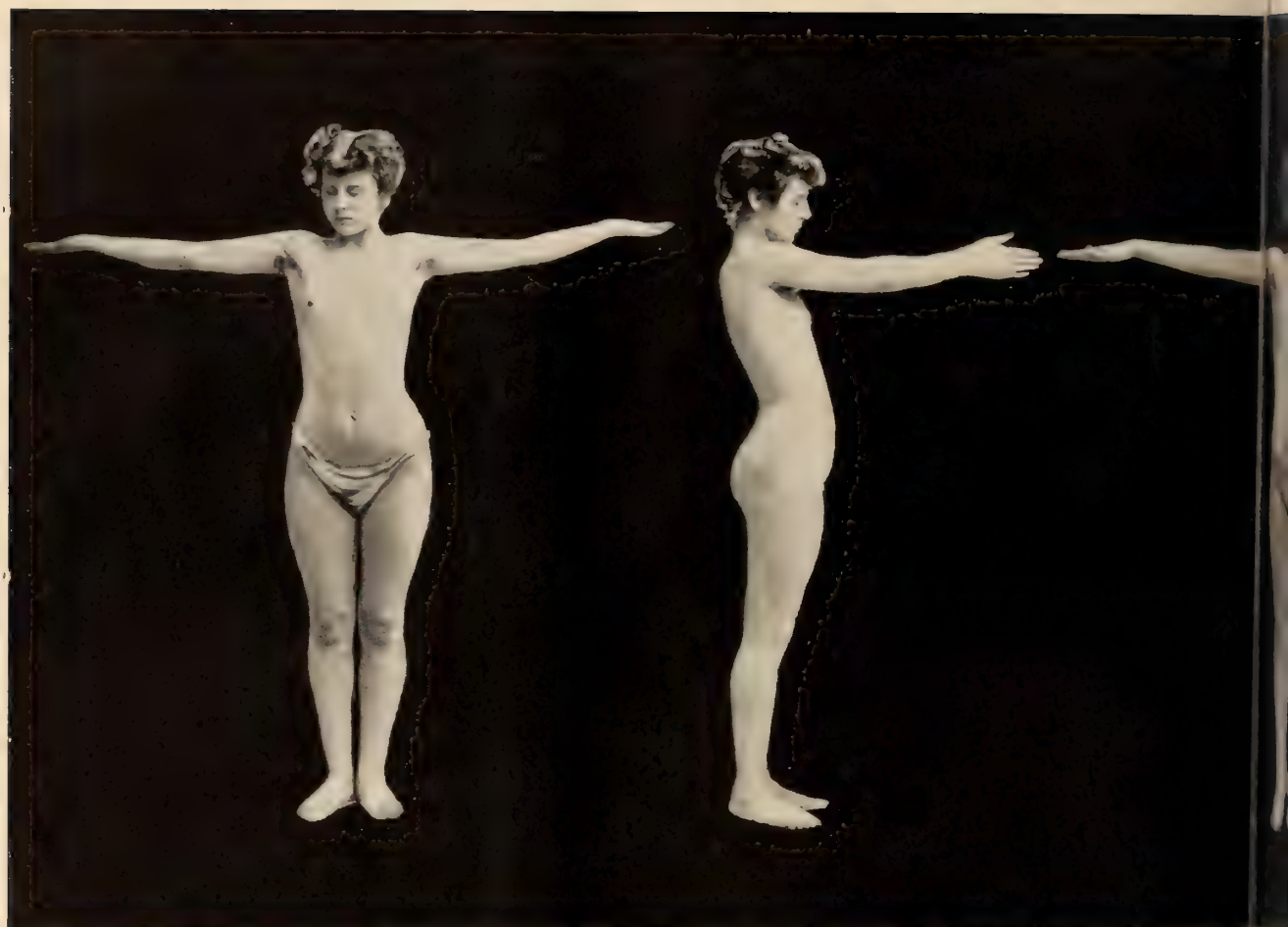


Inhale, hold breath, revolve right arm twice, slowly; exhale.

EXERCISE B.

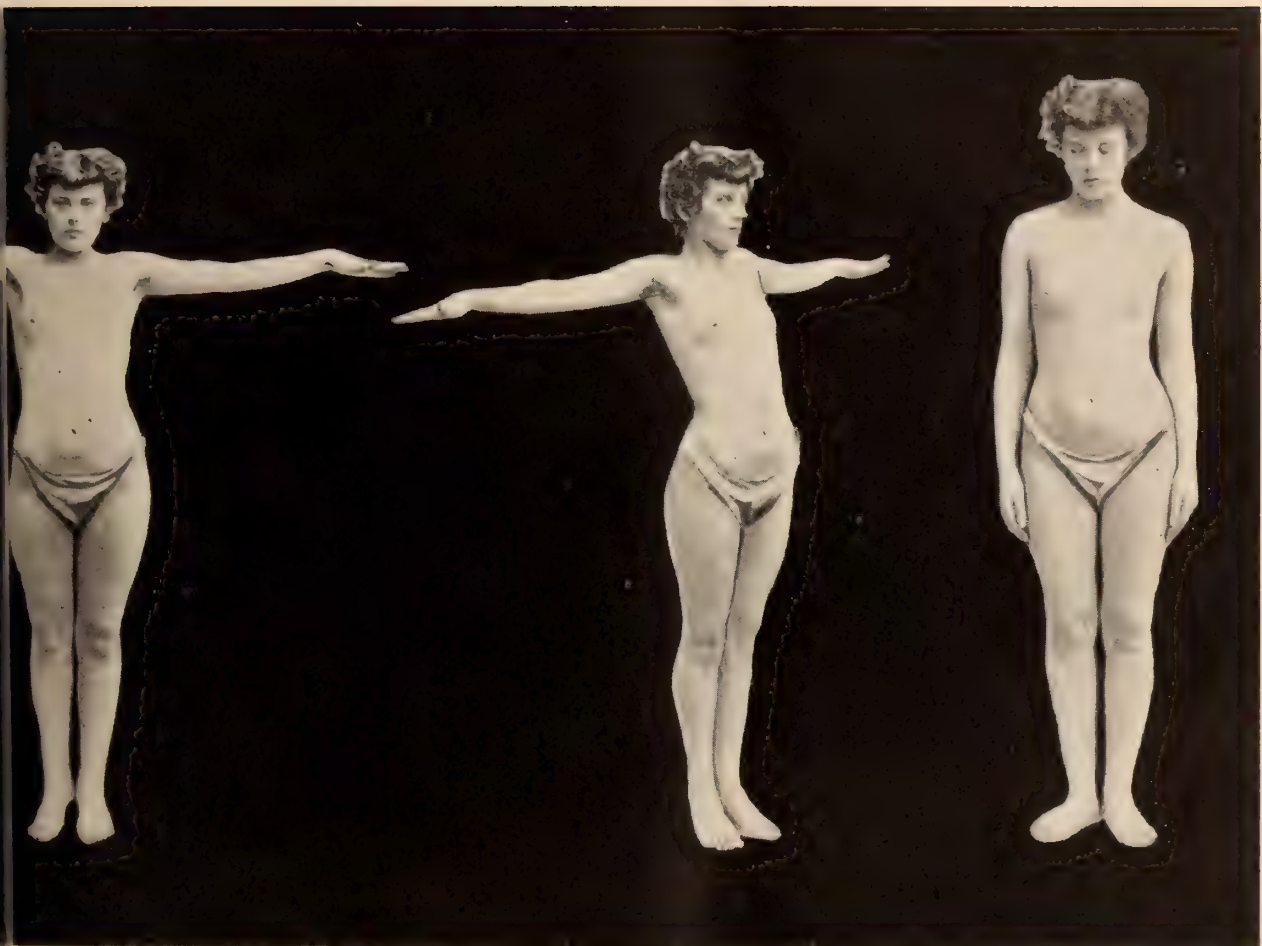
Arms extended to side and back, palms up.
Grind shoulder-blades, moving hands in
small circles.

EXERCISE C.



First movement.
Extend arms at side, palms up.

Second movement.
Palms together in front of body,
shoulder high.



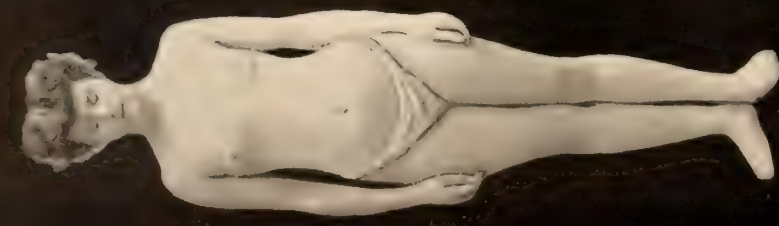
Third movement—front and three quarters view.

Rise on toes, inhale; extend arms to side, and back as far as possible.

Fourth movement.

Arms down, exhale, down on heels.

E D.



Heels together, knees touching, toes out, chin in, arms hanging naturally.
Front and side view.

First movement.
Extend arms at side, palms up.

Second movement.
Arms up, touching fingers over head.

Third movement.
Clap hands over head, full length up.

Fourth movement.
Arms down to side.

CORRECT STANDING POSITION.

EXERCISE E.

℞ Ol. creosoti, }
 Bals. copaibæ, } āā 3 j;
 Liq. opii sedativi, }
 Pulv. acaciæ..... 3 iv;
 Aq. camphoræ..... 3 viij.

Fiat mist.

A tablespoonful of this mixture should be injected into the rectum night and morning.

The writer's first knowledge of the vermicide properties of creosote was obtained accidentally in a noted case which occurred in 1847 in Louisville, and which is reported in his treatise on anal fissure, published in 1868, p. 159. The patient had, with several other affections, chronic inflammation of the mucous membrane of the rectum, constituting a severe case of chronic catarrh of that organ. He was directed to inject two tablespoonfuls of the creosote mixture into the rectum night and morning. About two hours after the injection of the first dose the patient felt so strong a desire to stool that he could not resist it, and he passed into the chamber without effort three balls of what he thought were fecal matter, but, upon inspection, he found them composed entirely of mucus and small worms. He at once called the attention of the writer to the circumstance, and, upon examination, the patient's statement was verified. The worms were the pin or thread worms—*Oxyuris vermicularis* of Bremser, or the *Ascaris vermicularis*. These worms are generally found *en troupe* in the pouch of the rectum, where they find a nidus, and are so completely invested with mucus as not to be easily accessible by anthelmintics administered by mouth. In this instance the creosote in the mixture was doubtless the principal agent in effecting their death and complete dislodgment. When counted by the patient, he found they numbered three hundred and fifty-four. The continued excitement and irritation of the mucous membrane of the rectum produced by the long presence of these parasites were doubtless the primary cause of the catarrh, fissure, fistula, and spermatorrhœa, from all of which the patient suffered.

Some late authors say that these worms are indigenous to the cæcum; but this is not the experience of the old authorities or that of the writer. They may migrate to that organ, as they doubtless do to different portions of the intestinal canal, but they are never found in such large numbers anywhere as in the pouch of the rectum. It will be admitted, however, that the cæcum would afford them a very snug harbor, from which they could not be easily reached by anthelmintic remedies administered either by mouth or by rectum; and in that locality, too, their long and mischievous presence would be well calculated to cause appendicitis. The writer has also found creosote valuable as an injection in obstinate leucorrhœa and gonorrhœa, as well as in simple and superficial fistulous passages and in the worst cases of ozæna. As a lotion he found it beneficial in chronic and in indolent ulcers, and, in the form of an ointment, excellent in burns, fissures, abrasions, and in chilblains.

The writer will now present a few of the early formulæ which he used in the administration of creosote and for the purposes indicated. The following prescription was found

beneficial in the diarrhœa attending pulmonary tuberculosis, a tablespoonful to be taken three times daily:

℞ Ol. creosoti ℥vj;
 Sp. ammoniæ aromat..... 3 j;
 Aq. menth. piperitæ..... 3 iv.

Fiat mist.

This prescription has been found very useful in chronic affections of the kidneys and bladder. From one to two tablespoonfuls of the mixture to be taken by mouth three times daily:

℞ Ol. creosoti, } āā 3 ss.;
 Acid. acetici, }
 Sp. juniperi comp., } āā 3 j;
 Syr. simplicis, }
 Aq. destillatæ..... 3 xiv.

Fiat mist.

The following prescription is very good in allaying irritability of the stomach in emesis, as in cholera morbus, etc. A tablespoonful to be taken frequently:

℞ Ol. creosoti..... ℥xv;
 Syr. simplicis..... 3 j;
 Aq. menth. piperitæ..... 3 v.

Fiat mist.

This prescription is good in obstinate leucorrhœa. Inject two tablespoonfuls *per vaginam* twice daily:

℞ Ol. creosoti, } āā 3 j;
 Liq. potassæ, }
 Aq. camphoræ..... 3 viij.

Fiat mist.

As an ointment the following is excellent in burns, fissures, abrasions, chilblains, etc.:

℞ Ol. creosoti..... 3 j;
 Bismuthi subnit., } āā 3 ij;
 Glycerini, }
 Ung. aquæ rosæ..... 3 j.

Fiat unguentum.

The following lotion is good in pruritus ani et vulvæ:

℞ Ol. creosoti..... 3 ij;
 Acid. oxalici..... 3 ss.;
 Aq. camphoræ..... 3 ij.

Fiat lotio.

As a lotion this is a good one for chronic indolent ulcers:

℞ Ol. creosoti..... ℥xij;
 Aquæ puræ..... O j.

Fiat lotio.

The following prescription was found at one time to be highly valuable as a gargle in mercurial ptyalism, but mercurial salivation is now scarcely ever heard of:

℞ Ol. creosoti..... 3 ss.;
 Infusi salviæ foliorum..... 3 viij.

Fiat gargarysma.

During the long and frequent employment of creosote in various affections, administered both by mouth and by rectum or colon, the writer but seldom witnessed toxic or disturbing symptoms, always, however, being careful to watch closely its effects, both as regarded its tolerance by the rectum and the stomach, as well as its effect, too, upon the urine, continually if necessary, either augmenting or

diminishing the dose as the nature of the particular case required, and sometimes even withholding the remedy altogether for a time, to be again resumed.

With regard to the rectal tolerance of creosote, it has lately been asserted that if the rectum tolerates the remedy at first, it sooner or later rebels against it like the stomach. The reverse of this, however, has always been the experience of the writer; indeed, as a rule, he has found that the longer it was used the better, if possible, it was tolerated. This immunity from the irritating effects of the creosote upon the mucous membrane of the rectum may to a great extent be owing to the peculiar ingredients which the writer always incorporated with it, as seen in the first and second prescription presented above.

The writer will now conclude with the hope that creosote, which is at present placed in the first rank as an excellent and highly prized remedy in tuberculosis, will continue to maintain its high position and stand the test of time, never to be relegated, like so many valuable remedies heretofore have been, to that *limbus* from whose bourn so few ever return.

184 CENTRAL AVENUE.

TWO CASES OF DESTRUCTION OF VISION BY FOREIGN BODIES; RESTORATION OF SIGHT IN ONE OUT OF FOUR EYES BY OPERATION.

By DAVID WEBSTER, M. D.,

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THE two following cases are of extraordinary interest, inasmuch as the father lost the sight of both eyes from injury with bird shot, the gun having been fired by his son, while the same son lost the sight of one eye permanently and of the other temporarily by a cannon explosion less than a year later. The acuteness of vision restored to one of the son's injured eyes by the removal of the traumatic cataract is worthy of remark:

CASE I. Both Eyes of the Father Put Out by Bird Shot.—James O. P., aged forty-eight years, of Tariffville, Conn., was accidentally shot by his son in both eyes, a No. 10 shot in each, on August 13, 1869. His son thus describes the catastrophe: "We were hunting woodcock in the bushes. My father was about five rods from me when I shot. I did not see him. The bird was flying. My gun was elevated from where I stood as much as five rods over his head. There were only two shots struck him—one in each eye."

When Mr. P. came to consult Dr. C. R. Agnew, on May 29, 1874, nearly five years after the accident, the condition of his eyes was as follows: There was no perception of light in either eye by the usual tests, but the patient said he could see the sun with both eyes. The crystalline lenses were mostly absorbed. There was total posterior synechia of both, and both irides were arched backward. A cicatrix at the center of each cornea showed where the shot had entered the eye. Dr. Agnew was of the opinion that no operation would restore any sight, and advised him to have nothing done for his eyes.

CASE II. Both Eyes Injured by a Cannon Explosion; One Lost; the Sight of the Other Restored by Operations.—J. C. P., aged twenty-three years, the son of the above patient, and the

man who did the shooting, was brought to Dr. Agnew's office at the same time with his father.

On the 4th of July following the accident to his father—i. e., July 4, 1870—he had both eyes injured, one lost, by a gunpowder explosion. He thus describes the accident: "I went up to the mountain to fire the cannon. It was a very large one. We put eleven pounds of powder in it, and drove turf in with a sledge hammer, and the second time the fuse that we set it off with turned over and struck in the vent hole, and it was loaded so—drove in so hard—that it did not go off. It all blew back out of the vent hole right to the left of my head. I was within two feet of the vent hole. My foot was on the cannon. If my head had been four inches to the left it would have been blown off. The powder did not burn that went into my face. I was covered from my waist up, and it burned my clothes off."

Upon examining him we found that he had *phthisis bulbi* of the left eye. In the right eye there was traumatic cataract. There were adhesions of the iris to the anterior capsule of the lens, and there were particles of powder and possibly of dirt in the substance of the lens. Still, he retained vision enough to enable him to get about alone. Dr. Agnew advised that the eyes be not operated upon unless the vision became worse.

June 6, 1878.—The patient counts fingers at four inches when they are moved before his eye. He can no longer see sufficiently well to go about alone.

10th.—I administered ether, and Dr. Agnew enucleated the left atrophied eyeball at the Manhattan Eye and Ear Hospital.

Several needle operations were done on the cataractous lens by Dr. Agnew at proper intervals of time, and the vision was considerably improved. He came to the hospital on July 17, 1885, with a dense membrane in his pupil and with vision only $\frac{2}{200}$ with the best glass. Dr. Agnew being absent, I performed a discission on the same day. The result was vision $\frac{10}{200}$ while the pupil was dilated with atropine; but it was evident that the clearest part of the pupil would be covered by iris when the effects of the mydriatic should have passed off.

On July 22d, five days after the discission, I made an incision with an iridectomy knife at the temporal side of the cornea, just over the border of the dilated pupil. I then passed in a small, sharp hook, and, engaging it in the membrane, withdrew the latter from the eye, leaving quite a large mass of opaque lens-matter in the supero-temporal portion of the anterior chamber in contact with the iris. I then dropped in atropine and bandaged the eye. There was very little immediate inflammatory reaction. Some days later the patient had considerable pain in the eye. Iced cloths, atropine, and eserine were applied locally; one or two hypodermic injections of morphine were administered.

August 8th.—The eye is no longer painful, but still somewhat red. Vision = $\frac{2}{200}$ with $+\frac{1}{4}$.

15th.—The redness has passed off. Vision = $\frac{3}{200}$ with a convex glass.

June 23, 1894.—Vision = $\frac{2}{200}$ with his glass. Vision = $\frac{2}{12}$ with + 10 D. s. $\odot$ + 2.75 D. c. axis 50°. There is still, nine years after the last operation, a movable mass of organized lymph attached to the iris, supero-temporally, and waving about in the aqueous humor as he moves his eye.

The Sims Statue.—The unveiling of the statue of the late Dr. James Marion Sims will take place this (Saturday) afternoon, at three o'clock, in Bryant Park. All members of the medical profession are invited to be present. It is expected that short addresses will be given by Dr. George F. Shrady, the chairman of the committee in charge of the undertaking, and others.

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ISOLATION HOSPITALS FOR INFECTIOUS DISEASES.

THIS is the title of a very interesting and instructive pamphlet recently prepared by Dr. S. W. Abbott, secretary of the Massachusetts State Board of Health. Dr. Abbott opens with the remark that during the past two years there has been an increased demand from the authorities of cities and large towns, especially of manufacturing towns, for information on the subject of hospitals for infectious diseases, and this has induced him to make what he modestly calls a compilation. He lays it down that the essential difference between hospitals established for receiving patients attacked with infectious diseases and other hospitals consists in the fact that the general hospitals are maintained mainly for the purpose of affording care and treatment for the individual, while the infectious-disease hospitals, while they also afford this care and treatment, provide at the same time for the protection of the community at large, constituting one of the essential measures for preventing the spread of infectious diseases by furnishing the means of isolation in the first cases which appear in the community. The chief reasons for establishing these special hospitals in large cities are given as follows:

1. Isolation constitutes the first and essential principle in the preventive treatment of the majority of infectious diseases. The more nearly perfect the barrier between the sick and the well, the greater is the approach to certainty in staying the spread of infectious diseases. The increasing accumulation of population in the cities has a tendency to favor the spread of such diseases. To illustrate the effect which this crowding together of the population has upon the mortality from infectious diseases Dr. Abbott presents data which are the result of observations extending over a period of twenty years in Massachusetts, taken from the *Twenty-third Annual Report of the State Board of Health*. They are given in the form of a table showing the mortality of eight principal infectious diseases in densely, moderately, and sparsely settled districts. Assuming the mortality from each of these diseases to be 1,000 in a dense population, it is found that the respective figures for the moderately and sparsely settled districts are these: Measles, 517 and 445; scarlet fever, 818 and 587; diphtheria and croup, 780 and 634; small-pox, 332 and 149; cholera infantum, 894 and 639; consumption, 810 and 727; pneumonia, 792 and 783; typhoid fever, 1,109 and 1,175. In this classification of districts those are set down as densely populated in which there is less than an acre to each inhabitant, as moderately populated those in which there is more than an acre but less than four acres to each inhabitant, and as sparsely populated those in which there

are more than four acres to each inhabitant. It appears by the table that overcrowding has an unfavorable effect upon the mortality from each of the diseases mentioned, except typhoid fever.

2. It is well known that the majority of laborers and artisans are unable to furnish separate accommodations for the isolation of members of their families who may become ill with infectious diseases. Such families usually live in tenements of from one to four rooms, none of which can safely be devoted to the treatment and isolation of individuals affected with dangerous infectious disease.

3. Another important advantage secured by means of isolation hospitals is found in the fact that they enable the ordinary duties of the household, the attendance of the well children at school, and continued work by the head of the family to be carried on without disturbance, for the danger of infection has been removed by the transfer of the sick member of the family to the hospital. In this connection Dr. Abbott refers to the melancholy fact that it has not infrequently happened that the local sanitary authorities of cities and towns have not only rigorously enforced the law relating to non-attendance at school, but also quarantined all the members of a family attacked, old and young, so that the children were deprived for the period of from two to ten weeks or more of their educational privileges at the most important or most receptive period of their lives, and, furthermore, the father was kept from his work in the mill, the factory, or the workshop. Even if he is allowed to work, says Dr. Abbott, his fellow workmen are wont to regard him with suspicion so long as any individual of his household is the subject of an infectious disease. On the other hand, the prompt removal of such individuals permits the school attendance and the employment of members of the family to go on undisturbed.

The diseases which, Dr. Abbott thinks, should be treated in special isolation hospitals are scarlet fever, diphtheria, small-pox, measles, typhus, cholera, and typhoid fever; also, in the Southern States, yellow fever.

MINOR PARAGRAPHS.

MENSTRUATION AND INFECTION.

THE connection between erysipelas and infectious peritonitis has long been considered intimate, and there is now good ground for the belief that, from a bacteriological point of view, the two diseases are identical. In the *Presse médicale* for September 29th there is an interesting communication from Dr. Henri Meunier, a hospital interne, giving an account of a fatal case of peritonitis which suddenly attacked a healthy young girl under somewhat peculiar circumstances. She was a domestic servant, and her mistress was seized with severe facial erysipelas. The young girl took an active part in nursing the sick lady, was almost constantly at her bedside, and personally attended to changing the applications to her face. While this was going on the girl's menstrual flow appeared, and she committed the imprudence of using as a menstruous napkin a cloth that had been used in a dressing for the lady's face. She was suddenly seized with a violent chill while out for a walk, also with malaise, headache, general de-

pression, and soon afterward repeated vomiting. Her courses, which had appeared two days before, were brusquely suppressed. Her death followed in the course of five days, and the post-mortem examination showed conclusively that the disease could have had no other origin than by infection from the napkin. The case is recorded with all the details, and the author's remarks on it are well worth reading in full.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending October 16, 1894:

DISEASES.	Week ending Oct. 9.		Week ending Oct. 16.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	25	10	39	10
Scarlet fever.....	30	3	51	4
Cerebro-spinal meningitis..	0	0	1	1
Measles.....	17	3	19	3
Diphtheria.....	108	24	131	37
Small-pox.....	7	1	0	0
Tuberculosis.....	105	76	102	128

The New Bloomingdale Asylum, at White Plains, was visited and inspected by an invited company on Wednesday afternoon, the 17th inst.

Changes of Address.—Dr. Russell Bellamy, from Colorado Springs to No. 35 West Thirty-first Street, New York; Dr. Lorenzo N. Grosvenor (Chicago), to No. 928 Kenmore Avenue; Dr. Mary E. Hennessy, to No. 20 East Forty-third Street.

The University of Virginia.—Dr. Augustus H. Buckmaster, of New York, one of the editors of the *American Gynecological and Obstetrical Journal*, has been appointed professor of the practice of medicine and of obstetrics (including gynecology).

Another Proposed Addition to the Medical Curriculum.—The Medical Council of the Province of Brandenburg, whose headquarters is in Berlin, recently addressed to the Prussian Government a petition asking that arrangements may be made for the supply of instruction to medical students on all that concerns insurance against sickness, accident, old age, and infirmity. It is urged that such instruction should be practical as well as theoretical. The Cultus-Minister has accordingly sent a circular letter to the presidents of the other provinces of Prussia, asking them to obtain an authorized expression of opinion on the subject from all the medical councils in the kingdom.—*British Medical Journal*.

The Death of Dr. Stuart Douglas is announced as having taken place on Sunday, the 14th inst. He was thirty-three years old, a native of Virginia, and a graduate of the University of Virginia. For the last seven years he had been in charge of the insane at Bellevue Hospital, and had acquired no little repute as an alienist.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from October 7 to October 13, 1894:*

KIMBALL, JAMES P., Major and Surgeon, is ordered to Fort Wingate, New Mexico, for duty, upon abandonment of Fort Marcy, New Mexico. Upon arrival of Major Kimball at Fort Wingate, MACAULEY, C. N. B., Captain and Assistant Surgeon, will take the station at Fort Apache, Arizona, for duty, relieving IRELAND, M. W., Lieutenant and Assistant

Surgeon. Lieutenant Ireland, on being thus relieved, will take station at Fort Stanton, New Mexico, relieving KEEFER, F. R., First Lieutenant and Assistant Surgeon. Lieutenant Keefer, on being relieved, will proceed to and take the station at Washington Barracks, D. C.

PRICE, CURTIS E., Major and Surgeon, will proceed to and take the station at Fort Sill, Oklahoma Territory, upon abandonment of Fort Supply, Oklahoma Territory.

BUSHNELL, GEORGE E., Captain and Assistant Surgeon, will, by direction of the Acting Secretary of War, be relieved from duty at David's Island, New York, by the commanding officer of that post on the receipt by him of this order, and will then report in person to the commanding officer at Fort Hamilton, New York, for duty at that post, reporting by letter to the commanding general, Department of the East.

MACAULEY, C. N. B., Captain and Assistant Surgeon. By direction of the Acting Secretary of War, the extension of leave of absence granted in S. O. 55, Department of the Colorado, September 14, 1894, is further extended one month.

WOOD, MARSHALL W., Major and Surgeon, is granted leave of absence for twenty-five days, to take effect upon being relieved from duty at Boston, Mass.

IVES, FRANCIS J., Captain and Assistant Surgeon, having proceeded with troops to Fort Ethan Allen, Vermont, is, by direction of the Secretary of War, relieved from further duty at Fort Sheridan, Illinois, and will remain on duty at Fort Ethan Allen until the arrival there of APPEL, AARON H., Captain and Assistant Surgeon, when he will report in person to the commanding officer at Plattsburgh Barracks, New York, under the requirements of paragraph 10, S. O., 221, A. G. O., September 20, 1894.

MUNN, CURTIS E., Major and Surgeon, is ordered to Benicia Barracks, California, upon abandonment of Mount Vernon Barracks, Alabama, relieving RAFFERTY, OGDEN, Captain and Assistant Surgeon. Captain Rafferty, on being relieved by Major Munn, is ordered to the Presidio, San Francisco, Cal., for duty.

FLAGG, CHARLES E., First Lieutenant and Assistant Surgeon, is relieved from duty at the Presidio, San Francisco, Cal., and ordered to Angel Island, Cal., for duty.

HUBBARD, VAN BUREN, Major and Surgeon, is relieved from duty at Fort Spokane, Washington, and ordered to Fort McPherson, Georgia, for duty at that station.

WARE, ISAAC P., First Lieutenant and Assistant Surgeon, is relieved from duty at Fort Supply, Oklahoma Territory, and ordered to Camp Eagle Pass, Texas, for duty. Upon arrival of Lieutenant Ware at Camp Eagle Pass, STARK, ALEXANDER N., First Lieutenant and Assistant Surgeon, will return to his proper station at Fort Sam Houston, Texas.

GARDNER, E. F., Captain and Assistant Surgeon, is ordered to Boston, Mass., for duty as attending surgeon and examiner of recruits, upon abandonment of Fort Mackinac, Michigan, relieving WOOD, M. W., Major and Surgeon, who, on being thus relieved, will proceed to take the station at Boise Barracks, Idaho, to relieve STEPHENSON, WILLIAM, Captain and Assistant Surgeon. Captain Stephenson, on being relieved, will proceed to and take the station at Vancouver Barracks, Washington.

DESHON, GEORGE D., First Lieutenant and Assistant Surgeon, will be relieved, upon the arrival of CORSON, JOSEPH K., Major and Surgeon, at Fort D. A. Russell, Wyoming, and is ordered to Fort Logan, Colorado, for duty.

BRADLEY, ALFRED E., Captain and Assistant Surgeon, is ordered to Fort Keogh, Montana, for duty, upon abandonment of Fort Sully, South Dakota.

SHAW, HENRY A., First Lieutenant and Assistant Surgeon, is ordered to Fort Niobrara, Nebraska, for duty, upon abandonment of Fort McKinney, Wyoming.

POINDEXTER, JEFFERSON B., Captain and Assistant Surgeon, is ordered to Fort Riley, Kansas, for duty, upon abandonment of Fort Bowie, Arizona.

Society Meetings for the Coming Week:

MONDAY, *October 22d*: Medical Society of the County of New York; Boston Society for Medical Improvement; Lawrence, Mass., Medical Club (private); Cambridge, Mass., Society for Medical Improvement; Baltimore Medical Association.

TUESDAY, *October 23d*: Medical Society of Virginia (first day—Richmond); New York Dermatological Society (private); Buffalo Obstetrical Society; Medical Society of the County of Putnam, N. Y. (quarterly).

WEDNESDAY, *October 24th*: Medical Society of Virginia (second day); New York Academy of Medicine (Section in Laryngology and Rhinology); New York Pathological Society; New York Surgical Society; American Microscopical Society of the City of New York; Metropolitan Medical Society, New York (private); Medical Society of the County of Albany, N. Y.; Philadelphia County Medical Society.

THURSDAY, *October 25th*: Medical Society of Virginia (third day); New York Academy of Medicine (Section in Obstetrics and Gynecology); New York Orthopædic Society; Brooklyn Pathological Society; Roxbury, Mass., Society for Medical Improvement (private); Pathological Society of Philadelphia; Massachusetts Medical Benevolent Society (annual).

FRIDAY, *October 26th*: New York Society of German Physicians; New York Clinical Society (private); Yorkville Medical Association (private); Philadelphia Clinical Society; Philadelphia Laryngological Society.

SATURDAY, *October 27th*: New York Medical and Surgical Society (private).

Answers to Correspondents:

No. 426.—We have no knowledge of the device mentioned.

No. 427.—The only States *without* legal requirements to practice medicine are Maine, Massachusetts, and New Hampshire. Alabama, Arkansas, Florida, Maryland, Minnesota, Mississippi, New Jersey, New York, North Carolina, North Dakota, Pennsylvania, South Dakota, Texas, Utah, Virginia, and Washington require an individual examination by boards of examiners. California, Colorado, Connecticut, Delaware, Illinois, Iowa, Kentucky, Louisiana, Missouri, Montana, Nebraska, New Mexico, Oklahoma, Oregon, Tennessee, Vermont, and West Virginia require supervision of a diploma by some designated body, authorized by law, to determine its validity, or, in the absence of a diploma, the passing of a satisfactory examination. Arizona, Georgia, Idaho, Indiana, Kansas, Michigan, Ohio, South Carolina, Wisconsin, and Wyoming require the presentation of a diploma from a chartered medical college and registration with a county clerk, a clerk of a court, a registrar of deeds, or some qualified judge. In the District of Columbia the only requirement is the indorsement of a diploma by a committee of the District Medical Society or an examination of the candidate by that body. The annual meetings of examining boards are usually held at the time of the annual sessions of the State medical societies. The time and place for semiannual meetings can be ascertained by correspondence with the secretaries of the medical societies of the States in which such boards exist. Registration can, so far as we are informed, be made at any time in States where there is no examining board.

Proceedings of Societies.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Meeting of September 12, 1894.

Strychnine as a Tonic during Gestation.—Dr. T. RIDGWAY BARKER read a paper entitled *When is the Administration of the Sulphate of Strychnine Contraindicated during Gestation?*

It was not his purpose, he said, to depreciate or undervalue the great benefit that sulphate of strychnine was capable of rendering in the majority of the cases of pregnancy.

The allegations made for it by Dr. Duff, of Pittsburgh, who had devoted himself with much enthusiasm to the study of this drug in its relation to obstetric practice, were not, he thought, without justification; but, with the estimable conservatism of a seeker after scientific truth, he left the subject open for further study and research, awaiting until time and a wider experience should prove its merits.

In a paper read before the South Side Medical Society of Pittsburgh, and in one presented to the American Association of Obstetricians and Gynecologists, in 1893, he had given his clinical experience.

At the forty-fifth annual meeting of the American Medical Association, recently held at San Francisco, he had again called the attention of the profession to the value of strychnine, and pointed out that it rendered abortions and premature deliveries less frequent by giving tone to the uterine muscles and nerves as well as by its general tonic influence.

These statements were beyond question correct in the vast majority of instances; but he who would avoid error and misfortune must bear in mind that every rule had its exception, and that the latter, though often overlooked, was no whit less important than the former.

The speaker had given sulphate of strychnine to a score or more of women during gestation with the happiest results, and so general had been the improvement in their condition that he had begun to think that there was no exception to this rule, but he had not long been left in doubt, for, as the following case reported would show, he had met the exception in a most unexpected but none the less pronounced form:

Mrs. G., primipara, aged twenty-nine years; general health good. She had menstruated last in October; previously she had been regular. She had suffered greatly from morning sickness and distressing nausea for nearly four months, which had been uninfluenced by internal medication. There had been besides these symptoms costiveness and a more or less irritable bladder. The appetite had been poor, and loss of flesh had been quite marked as the pregnancy advanced.

In the early part of the sixth month she had first complained of a sense of weight felt in the abdomen and pelvis; this had soon been aggravated by soreness and pain which had persisted throughout the day and night. The nervous depression in this case had been all out of proportion to the severity of the symptoms, and had seemed to trouble the patient more than almost anything else.

There had been no kidney trouble of any kind, or evidence of swelling of the limbs or face. The heart had been normal, save a slight anæmic murmur.

The blood had been deficient in red blood-cells and had shown a condition typical of that found associated with pregnancy. The woman, when married, had weighed some hundred and thirty pounds, but now was much emaciated. The vagina and cervix had been normal and the uterus in good position; there had been no adhesions.

To judge from the size of the abdomen and the activity of the fœtus, development had been progressing favorably. There had existed, however, double ovarian tenderness, which denoted congestion of a pronounced type, and to this the speaker had ascribed in part the great mental depression, though, of course, much had depended upon the anæmic blood supplied to the nerve centers.

Deeming this case one suitable for the administration of sulphate of strychnine from a careful analysis of the objective and subjective symptoms, he had determined to place the woman upon the use of one twentieth of a grain, twice a day, with the hope that it would stimulate a healthy nerve action and relieve, as had been alleged, the uterine irritability which had threatened to result in an abortion.

He reasoned that the nervous disturbance had been due to anæmia of the central nervous ganglia and had involved the sympathetic system as well; that the uterus had threatened to expel its contents because the nerves controlling its muscular coats had been in a state of hyperæsthesia dependent upon insufficient nutrition. With this idea the speaker had placed the patient upon the use of the drug, which experience had proved to be the best suited to overcome just such a condition as he had found present.

Within thirty-six hours the uterus had become more rebellious; its muscular contractions had increased rather than lessened in violence, and had recurred with greater frequency. The dull pain which had persisted for several days had now become acute and intermittent, and had radiated from the umbilicus to the loins.

An abortion had undoubtedly been threatened, and might almost have been considered inevitable. The use of strychnine had been promptly discontinued, as it had undoubtedly only made matters worse, causing a passive uterine contraction to become active, and thus augmenting the expulsive uterine forces.

A sedative mixture containing morphine, chloral, and bromide of sodium in solution had been ordered to be taken every hour, and the patient had been put to bed and directed to keep perfectly quiet. In a few hours the pains had been allayed and the uterine contractions had become feebler and had recurred at longer intervals. These signs had given rise to a hope that the patient might yet escape an abortion.

Twenty-four hours had elapsed with no return of the contractions. The prospect had seemed to brighten, but only to give place within another twelve hours to a sudden and aggravated attack of pain, followed by strong uterine contractions, which, acting upon the cervix, had soon overcome its constricting fibers, and an abortion had been the result. In a few hours the whole uterine contents had been expelled, much to the regret and disappointment of both physician and patient.

Thus had ended one case of gestation in which strychnine might be said to have been the exciting cause of the abortion. Here we had what Dr. Duff probably referred to when he remarked in his paper, "I am not unmindful of the fact that I have seen apparent evil results from its administration in a few cases."

In looking over the history of the case reported, one could not fail to be impressed with the fact that here was an instance where, had one known the exception to the rule, he would not have given strychnine, since clearly it had been contraindicated.

Instead of its acting as a sedative to the hyperæsthetic nerves through its tonic influence, it had played the rôle of an excitant, and thus brought about the very result most to be deplored—namely, an abortion.

Some might take exception to the size of the dose (one twentieth of a grain) twice a day; this, the speaker granted, was not a small dose, but at the same time it was one he had frequently given with the best results, and he had found that a much smaller dose failed to be beneficial.

He did not, therefore, think that the amount administered made any material difference. That strychnine required to be given during gestation with much more care than had heretofore been exercised he thought was very evident. Moreover, when there existed great mental depression, associated with symptoms of distress and pain referable to the pelvic region, with involvement of the uterus, he thought the administration of strychnine was contraindicated, for under such conditions it was more than likely it would act as an irritant and not as a sedative, and so would tend to produce an abortion, the very danger one was struggling to avoid.

Strychnine, then, it would appear, was indicated in cases of gestation which required a powerful nerve tonic, but contraindicated when such cases were complicated by pronounced pelvic disorders of a nervous type.

Abdominal Surgery.—A report of a group of cases covering almost the entire field of abdominal surgery was made by Dr. M. PRICE.

Dr. J. M. BARRON said that Dr. Price had reported one case where he had removed the uterus because it had produced obstruction of the bowels, the patient being in collapse at the time of the operation. Under these circumstances the usual surgical procedure would be to make a temporary artificial anus by a small abdominal incision, to bring out a single loop of the distended bowel, the distention showing it to be above the obstruction, and to open it at once. This was Mr. Treves's method, and was one he had used with some success on several occasions. If the patient rallied, extirpation of the uterus or such other radical surgical procedure as might be required might then be resorted to, with the patient in a condition to stand the operation.

There was one point he would like to call attention to in the appendicitis operation reported. He understood the doctor to say that he did not close any portion of the abdominal incision. If not closed it was very liable to be followed by a hernia. In his earlier operations he had had several cases of hernia, but in his later cases he had been fortunate enough to avoid this by using the gauze not as a drain but only to isolate the rubber drain, and by at once closing nearly all the wound.

If the pus was deep he made the opening through the abdominal walls not less than four inches in length, and after opening the abdominal cavity, and before opening the abscess or attempting to remove the appendix, he prevented infection of the general peritoneal cavity by surrounding the place where he proposed opening the abscess with gauze, packing it under the edges of the incision so as to keep the movable intestines away from the wound and the danger of infection from the pus. The abscess was then opened and two rubber drains were introduced to the bottom of it, and the abdominal wound closed by the interrupted suture, allowing only the ends of the rubber drains to protrude; the gauze was left inside, with only a corner showing, by which to seize and remove it on the third or fourth day.

The two stitches next to the rubber drains were tied in a bowknot, so that they might be readily retied if they had to be loosened to remove the gauze. In all the cases in which he had used this method the patients had recovered without any hernia whatever.

Of course, if the abscess was in contact with the anterior abdominal wall and the general cavity shut off by adhesions, no

gauze packing was necessary, and the short incision, such as Dr. Price had mentioned, was quite ample.

Dr. ERNEST LAPLACE said that he shared Dr. Barton's opinion that, in chronic cases of appendicitis, where pus was isolated from the general peritoneal cavity, the more we treated the condition as one of abscess the more successful would we be. A small incision was not as good surgery as laying the abscess freely open so as to see what we were doing, not tampering, however, with the posterior wall of the cavity. Then the walls should be cleaned and irrigated and the cavity packed gently with iodoform gauze. This gauze should be removed and replaced the following day. The more thoroughly we were able to apply the theory of asepsis the better would the case behave.

He thought that we could not be too cautious in treating cases of chronic appendicitis. We must look at it as nothing but an abscess, and never look for the appendix unless it was to be easily found. If it was not removed it would do no harm, and would be imbedded with the rest of the cicatricial tissue during the healing process.

Dr. MARIE B. WERNER said that there was one part of the paper which had interested her very much, and that was the question of the mental state in pelvic disease. About two years ago she had made some investigations, as far as she had been permitted, at the Norristown Insane Hospital. She had examined thirty cases, and had found fifty per cent. suffering from pelvic disease of some sort. Some, no doubt, would have been benefited by local treatment, others by operation. There had been two on which she had operated. One had been a case of double hydrosalpinx. The patient had been insane since 1888. The operation had been done in July, 1892. The patient was now, so far as she knew, perfectly sane. This patient had been seen by Dr. Thomas G. Morton after dismissal, who had verified her present statement. The patient left the hospital about eight weeks after operation. In the second case there had been a cystomatous degeneration of one ovary and tubercular disease of both tubes and ovaries. The patient had had several attacks of insanity, and had been in Kirkbride's three times. Each attack had been preceded by an attack of pelvic inflammation. In this case the ovaries and tubes had been removed, and the patient had made a rapid and thorough recovery. The speaker had seen her afterward in her own home, and she had been well, not only physically but mentally.

Dr. Werner was sorry that she could not speak of more than two cases, but those two cases showed that there was a wide field for work of this kind. She did not wish to be understood as pleading for the knife entirely; she pleaded for thorough investigation and good treatment in these cases. In her own practice she had met with several cases which had led her to think that much could be done in that direction. One which she distinctly remembered had occurred in her early practice. The patient had been a young woman who had felt that she must leave her baby or else she would kill it. She had suffered from a laceration of the cervix and a complete laceration of the perinæum. She had repaired the lacerations, and the patient got well, but how long the cure lasted she could not say, because she had drifted out of her sight. It certainly had lasted a few years.

Dr. J. M. BALDY did not care about discussing the paper; but, since such emphasis had been laid on the nervous phenomena in connection with fibroid tumor, he should not like the statements to go out from the society apparently sanctioned by his silence. In a very large number of fibroid tumors (hundreds) he had not seen one in which there had been any insane symptoms. Thinking over his cases, he should say that they were decidedly freer from nervous phenomena than any other

class of gynecological cases; certainly more than the pelvic inflammatory cases. As to insanity being due to gynecological troubles, he had a number of times been called to insane hospitals to see patients whose friends were possessed with the idea that their insanity had been due to pelvic disease, and in not a single instance had he found the slightest disease to which the insanity could be attributed. He did not believe that the subject had anywhere near the importance that had recently been attempted to be given to it.

Dr. W. EASTERLY ASHTON said that in a large experience with fibroid tumor he had certainly seen no symptoms that would in any way point to a disordered state of the mind. It was true that some of these women were nervous, but any one would be nervous suffering from constant pressure. Outside of the nervousness caused by the physical inconvenience of the tumor women had no mental symptoms.

It seemed to him that Dr. Price's statement in reference to fibroid tumors causing insanity was in line with another idea that had been advanced in regard to these growths—namely, that all fibroid tumors should be removed by operation. He was far from convinced that every fibroid uterus should be removed. The idea of insanity associated with fibroid tumors seemed to be an additional plea for this form of surgery. As long as a fibroid tumor of the uterus was small and uncomplicated by pelvic trouble he saw no reason why the woman should be subjected to abdominal section. The tumor should be carefully watched, and if it grew or showed signs of inflammatory changes, then it must be removed.

Dr. Ashton asked Dr. Price for an explanation. Last spring at one of the meetings of the Obstetrical Society he had made some remarks on the exploratory incision, and had made the statement that in a large percentage of obscure cases he would give very little for the positive diagnosis of any surgeon. Growing out of this statement, Dr. Price had stated that in no instance had he ever opened the abdomen unless he could put his finger on the disease. The speaker therefore asked what had led him to operate in the case of suspected appendicitis if the diagnosis had been uncertain?

Dr. G. BETTON MASSEY added his testimony in regard to the absence of any special mental manifestations in association with fibroid tumors. Out of a large number of cases he could recall none that had presented such manifestations, or more than the usual eccentricities of chronic illness. He wished to say, in regard to pelvic operations for mental disease, that there certainly was danger of overdoing them, and he spoke from a medical experience of three years in a hospital for the insane. He, however, tempered his remarks by saying that as yet the gynecologic treatment of the insane was an untried field in most of these institutions, and we should welcome any evidence of an increased scientific spirit among them.

Dr. WERNER mentioned a case where, he said, repair of the cervix and perinæum had been done in a case of puerperal insanity, and the patient got well. His view of puerperal insanity was that it was not due to an irritation such as that, but was an infectious disease. The disease was frequently curable of itself in six weeks. Possibly the criticism might apply to other cases, also that they had not been of the ordinary chronic type of insanity.

Dr. JOHN C. DA COSTA agreed to what had been said by Dr. Baldy and Dr. Ashton in regard to insanity not accompanying fibroid tumor. He did not think that Dr. Price meant to say that all these cases of fibroid tumors had been accompanied by insane symptoms. He rather thought that he intended to say that they had sometimes been accompanied with nervous symptoms of a profound character. Where you had a woman with a tumor in the abdomen which she knew had to be taken

out, she naturally would be nervous until she had made up her mind positively that it had to be removed. His experience had been that so far as mental derangement was concerned—not nervousness—patients with fibroid tumor had been free from it.

In regard to operation in these cases, he agreed with Dr. Ashton as to the propriety of letting small fibroids alone. When they grew rapidly or threatened malignancy it was time enough to take them out. He had now under observation cases of fibroid where he considered that operation would be so dangerous as to threaten life, and he was sure that by proper management they would tide over the menopause and get well if let alone.

Dr. WERNER stated that the case in which she had repaired the perinæum and cervix had been one that did not occur in her own practice as an obstetric case. The patient had come under her observation a year after the child was born, so that it could not properly be called an *acute* puerperal case.

Dr. PRICE said that if Dr. Ashton looked over the case of appendicitis he would find that he put his finger on what he had been going to remove. He knew that there was a diseased ovary and a diseased appendix and cut for it, and removed it. He thought that for eight years he had never done an exploratory operation. He had never opened the abdomen to make his diagnosis, yet Dr. Ashton was in a measure correct. In abdominal surgery exactness was impossible, but a man who was not able to say when he had a big ovarian tumor or a big fibroid was certainly deficient in diagnostic ability, and should not operate until he was sure he had something to remove.

In regard to fibroid tumors of the character that Dr. Massey had mentioned he had never seen them. The patients had never come to him until they were distressed by the condition and were suffering. In the thirteen cases reported there had not been one in which the tumor had not been larger than his head. When a tumor was of the size of a cherrystone to that of a Lima bean, such as Dr. Massey told us about, the speaker thought that the knife should not be used. He agreed that they were electric cases if you could find them, but no one but an electrician could detect them. He thought that if the cases of extensive fibroid disease were carefully examined it would be found that a number, he did not say all or nearly all, of them had mental symptoms that were marked, and bordered closely on the line of insanity. He did not say that of the pelvic cases with suppurative disease any number of them were to-day in our insane asylums, and the list of insane could be materially diminished if these cases had been properly treated. He agreed with Dr. Werner when she said that she did not advocate the knife in all of these cases of insanity; but if you could put your finger on the thorn that had driven that woman with pain and suffering to the madhouse, remove it. They were there by the hundreds, and operators throughout the country were saving hundreds from going there. If any one, he said, had a mass of pus in his abdomen, with adherent omentum and bowel racking his constitution, his chances of going to the insane asylum would be ten times greater than they were now. He did not say that this condition of itself produced insanity, but it greatly predisposed to it. We could prove it by a number of patients that had come into the house insane and had gone out sane.

With regard to appendicitis, he thought that Dr. Barton and Dr. Laplace misunderstood him. He agreed with those gentlemen except as regarded the incision. He had had twenty-three cases with two deaths. One had been a patient of Dr. Collins, who could have been saved if they had listened to Dr. Collins. The second patient died of sepsis which had been present at the time of operation. In two cases the appendix had been removed. These had been median operations. When the appendix was to be removed he believed that it should be a median

operation. Where one removed the appendix the symptoms of abscess were not so marked, but you had symptoms of obstruction of the bowel. Here one had to make a median incision in order to detach the adhesions. If one found that the abscess was mapped off from the peritoneal cavity one could make a drainage incision above the crest of the ilium. In the cases that fell into his hands there was generally a well-marked abscess, and drainage was the only indication, and no effort was made to find the appendix.

He thought that the practice of packing the whole abscess with gauze was unsafe. If these cases were opened, irrigated, and a gauze and rubber drain put in, the gauze being replaced every twelve or twenty-four hours, they would all get well. He did not care if the whole head of the colon was gone, they would get well without a fecal fistula. He had seen large quantities of feces pour out for eight or ten days and the opening finally close. If one made the incision too long one might go beyond the abscess cavity and get into the abdomen. A two-finger opening would enable one to do all that was necessary.

AMERICAN PÆDIATRIC SOCIETY.

Sixth Annual Meeting, held in Washington on Tuesday, Wednesday, Thursday, and Friday, May 29, 30, and 31, and June 1, 1894.

The Vice-president, Dr. F. FORCHHEIMER, of Cincinnati, in the Chair.

(Continued from page 475.)

A Case of Cyanosis.—Dr. WILLIAM P. NORTHEUP, of New York, read a paper, and demonstrated the lesions found in the heart. The case had been one of more than usual interest on account of its so closely conforming to the descriptions usually given in the books. The patient had been a boy four years and a half of age, with pale cheeks and dusky lips and fingers. The fingers had been knobbed, and his belly had been prominent. He had suffered from frequent attacks of dyspnoea, particularly after meals. The physical examination had shown a soft, purring thrill over the base of the heart; the apex beat half an inch outside of the left nipple line; the cardiac dullness extending from the right sternal border to the left nipple, and a loud, harsh systolic murmur heard along the left margin of the sternum, and distinctly localized at the junction of the second interspace on the left side with the third rib. This murmur had not been transmitted to the left or along the aorta. The second sound of the heart had been exceedingly feeble. The autopsy had revealed a marked hypertrophy of the right ventricle; a distention of the aorta; an unusually small pulmonary artery; an impervious ductus arteriosus; a foramen ovale which had been practically closed; a normal left ventricle; an incomplete septum at the auricular end; and a constricted conus arteriosus. A probe could not easily be passed from the pulmonary artery into the right ventricle, because the pulmonary artery had been at right angles to the axis of this artery, and exceedingly small. The case had been evidently one of early fetal endocarditis with constriction of the conus arteriosus. This endocarditis must have occurred early in development, before the septum was completed, so that Nature could elect the very best point at which to effect a compensatory circulation. The aorta, receiving a direct stream of blood from both ventricles, had been distended; the pulmonary artery, receiving very little blood, had remained small.

The Nomenclature of Diseases of the Mouth.—Dr. T. M. ROTON, of Boston, the chairman of a committee on this subject, presented the report. He said that the committee advocated uniformity in the designation of diseases, so that a disease could

be called by the same name wherever it was written or spoken about. To this end they had employed the term "stomatitis" as a basis, and upon this had founded four divisions—viz.: (1) Stomatitis catarrhalis; (2) stomatitis herpetica or aphthosa; (3) stomatitis ulcerosa; and (4) stomatitis mycetogenica. These were again subdivided, as, for instance, stomatitis catarrhalis was subdivided into (1) stomatitis secondary to the exanthemata, and (2) traumatic stomatitis. The report of the committee was accepted by the society.

The Nomenclature of Diseases of the Gastro-enteric Tract.—This report consisted in a schematic classification of these diseases. They made two grand divisions, gastric and enteric, and these were subdivided into three chief divisions—(1) developmental, (2) functional, (3) organic. There were, of course, many subdivisions. After some discussion this report was also accepted.

The Early Diagnosis of Pott's Disease of the Spine in Children.—Dr. DILLON BROWN, of New York, then read a paper on this subject. He said that the importance of an early diagnosis could hardly be overestimated, as upon it depended the hope of rapid recovery, the chance of avoiding infection of other parts of the body, and the prevention of deformity, abscess, and paralysis. In a great majority of cases it only required attention to be drawn to the spine to prevent error in diagnosis, but often the diagnosis was very obscure. The symptoms he divided into three groups: (1) The symptoms of all cases of tuberculosis—peculiar night cries, evening rise of temperature, languor, etc.; (2) the constant symptoms of vertebral caries, early lateral curve, local pain, a peculiar attitude, and rigidity of the spine due to reflex muscular spasm; (3) the symptoms secondary to interference with the spinal cord and nerves—paralysis, peripheral pain, dyspnoea, etc. The pain at the peripheral ends of the spinal nerves might be so severe that the patient might be supposed to have pleurisy, dyspepsia, gastritis, peritonitis, kidney disease, lung disease, or other local disease, according to the location of the spinal lesion. These could all be excluded if we remembered that all these symptoms might depend on vertebral caries, and made an examination of the spine to settle this question. Cerebral disease and rheumatism might be difficult to exclude. In rheumatism, the muscular stiffness usually involved more than the muscles of the spine, and the pain was greatest in the morning, after rest in bed, and diminished during the day. The symptoms due to spinal abscess should lead to a correct diagnosis if the possible origin of the abscess was considered. The abscesses were most commonly retropharyngeal and psoas. Fistula in ano was a rare result of caries of the spine. In all cases of curvature of the spine from other causes, the deformity was rounded and not angular. Psoas contraction was almost pathognomonic of spinal caries. It was the only cause of psoas contraction in which there was a kyphosis of the spine with limitation of the movement in every direction. Intense local pain was a prominent symptom in spinal caries. Hip disease might be confounded with caries of the spine. In the various diseases of the spine it might be difficult and sometimes impossible to make an early diagnosis. Fracture of the spine gave sudden deformity and absence of all the characteristic signs except the deformity. Aneurysm could be diagnosed before it involved the spine. Tumors of the vertebræ presented many difficulties in diagnosis.

Infantile Myxœdema.—Dr. NORTHRUP read a preliminary paper, and illustrated it by the histories of two cases which he reported. The first one was that of a girl, nine years of age. Four healthy children had been born to the same parents previous to this child. The parents had been Irish and American, respectively, and had been strong and healthy individuals. The

subject of the report had practically ceased to develop at the age of nine months, and when seen by the speaker, at the age of nine years, had been mentally no older than when nine months old. The head had been large and the complexion of a peculiar yellowish color, and the skin had a tallow-like feel. The hair had been thin, the bridge of the nose characteristically flattened, and the nostrils tilted back. The lower lids had been diffusely swollen, the cheeks pendulous, the lips thick and anæmic, the tongue protruding, the gums filthy and suppurating, and the odor of the breath very offensive. The soles of the feet had been dry, and the skin had presented a parchment-like appearance. Strangely enough, the thyroid gland had not seemed to be especially enlarged. The only words which the child could say had been "Da-da," and it would sit passively for hours tied in a chair without apparently noticing anything of its surroundings. There had been some evidences of rickets present. After the child had been admitted into the hospital, a few days had been allowed to elapse in order to ascertain the natural course of the temperature before beginning treatment with the thyroid extract. At the time of her admission the temperature had been 97.5° in the rectum in the morning, and 99.5° in the evening. On the second day the morning and evening temperatures had been 99.5° and 99°; on the third day, 98.5° and 99.5°. The bowels at first had been constipated, and had been relieved by the use of laxatives. On the fourth day after admission the treatment had been begun with the thyroid extract. The case had been believed to be one of congenital myxœdema, and to be a fair subject for testing the efficacy of this new method of treatment. A reliable glycerin extract of the sheep's thyroid gland had been given, and the dose had been regulated in accordance with the temperature of the body, the temperature being taken every two hours. To begin with, one minim had been given three times a day, and the dose had been increased one minim every second day. The endeavor had been to keep the temperature just below 100° in the rectum. On the fourth day the temperature had overstepped the limit, and the use of the thyroid extract had been temporarily stopped. Two days later the breath had been found not to be so offensive as at first, and at the end of eight days the tongue had been unmistakably smaller. Of course the bowels had been kept regular, and the ulcerating gums had been carefully cleansed. Four minims of the extract had been the highest daily dose. On the twenty-eighth day the patient had been attacked with pneumonia, which had run its course in four days. The thyroid treatment had been for the time suspended. The tongue had swelled while the thyroid extract was discontinued, and had diminished again on resuming the treatment. When the temperature had begun to decline, the use of the thyroid had been resumed. The child had then been taken home, and had been visited after three months' absence from the hospital, at which time it had been found that the improvement still continued. After eighty days of treatment it had been found that the tongue was smaller, the countenance was brighter, and the child took more food and in greater variety. There had been no increase in stature, however, under this treatment. The child had lost weight at first, as was said to be the case generally, but after this the weight had remained stationary.

The second case was that of Henry H., twelve years of age, who had been short and stumpy in appearance and had had a large head antero-posteriorly, also a flattened bridge to the nose, with prominent nasal openings pointing forward. The child had been stupid, and if, for the hundredth time, it was asked quickly what its name was, would look straight into the eye of the questioner, the lips would slowly shape themselves, he would take a long breath, and yet would hesitate for a long time before answering. Finally he would answer in a mumbling way.

Beyond answering these questions he seldom spoke. He followed the doctors all about the ward and seemed to be happy. He was still under treatment, but had not made any special progress.

Successful Treatment of a Case of Infantile Myxœdema with the Thyroid Extract.—Dr. WILLIAM OSLER, of Baltimore, read a paper on this subject. The first case reported had been under treatment since early in March of last year. The child had been three years of age, and a typical cretin. At first the child had taken an amount of the extract corresponding to about a quarter of a gland in each twenty-four hours. When seen on April 28, 1894, an extraordinary change had been noticed—first, in the entire loss of the cretinoid aspect, in improvement in the color, and in the general nutrition; and, secondly, in the rapid development, as he had grown four inches in height in a period of fourteen months, and had then been able to walk and run about everywhere. Before this he had been carried around constantly in the nurse's arms. In the third place, the mental development had been proportionately striking; for fourteen months before his vocabulary had consisted of "mamma" and "papa," and now he talked fairly well and said anything he desired. No one meeting the child for the first time would have any idea that there was anything peculiar about him. Although he was still undersized and undeveloped, and not talking as plainly as an ordinary child of its age, the improvement had been very marked and gratifying.

The result in the second case was, however, not nearly so favorable. The patient had been a cretin, nineteen years of age. Notwithstanding the treatment, the cretinoid aspect had persisted, and about all the improvement noticeable had been that the child was somewhat brighter than before. It should be said, however, that in this case the treatment had not been so systematically carried out.

Dr. W. L. CARR, of New York, referred to a case seen by him two months ago in which there had been marked improvement as a result of this treatment with the thyroid extract. Since September 27, 1893, there had been a growth of an inch in the lower extremities, and the mental state was decidedly better.

Dr. F. FORCHHEIMER, of Cincinnati, called attention to the peculiar effect the thyroid extract had had in one of his cases. The patient had been a cretin, nineteen years of age, in whom it had become necessary to stop the administration of the extract from time to time on account of the development of an extraordinary degree of mental excitement, amounting almost to mania.

Dr. NORTHRUP asked Dr. Osler whether he had found the thyroid gland in the child's neck larger or smaller.

Dr. OSLER replied that the thyroid gland could not be felt at all.

Dr. NORTHRUP said it seemed strange to him that his patient should have a perfectly healthy thyroid, so far as could be judged from palpation. He asked what had been the general feeling of the skin and flesh in Dr. Osler's patient, particularly whether it had been jellylike.

Dr. OSLER replied that in his case the skin had felt jellylike, and had been of a translucent, waxy appearance.

Acute Pyelitis in Infancy.—Dr. L. EMMETT HOLT, of New York, read a paper thus entitled. The author described three cases. The first was that of a male infant, eighteen months of age, seen in the New York Infant Asylum. It had been breast-fed, and had not been ill, with the exception of a mild attack of diarrhœa, up to September 15, 1892. At this time it had suddenly become ill, and had developed a temperature of 103.5° without any local symptoms of disease, with the exception of a slight stomatitis. On the second day the temperature had been between 101° and 103.5°, and a few râles

had been heard in the chest, so that pneumonia had been suspected. On the third day the temperature had been between 101° and 101.2°. Quinine had been given. During the next four days there had been a slight febrile movement, the temperature not rising above 101°. There had been marked restlessness and pallor; the urine had been scanty and high-colored. A specimen taken at this time had shown a deposit of three quarters of an inch of pus in the vessel in which the urine had been kept, a small quantity of albumin, and an immense number of pus and epithelial cells; no casts had been found. There had been only moderate prostration. There had been no subsequent rise of temperature, and the pus had diminished gradually in quantity, but had been present in the urine for a period of three weeks after this. At no time had casts been found in the urine. Twenty months later it had been ascertained that the patient had never had any subsequent urinary symptoms, and had continued to be well in all respects. This case had run its course without any treatment.

The second case was that of a female infant, eight months old, seen on December 6, 1892. It had been artificially fed from birth, but previous to this date had not been ill. It had been suddenly seized with a chill and high elevation of temperature. For the first three days the temperature record had not been preserved, but it was known that it had fluctuated between 103° and 106°. On the fourth day the temperature had varied between 102° and 105°. The symptoms in other respects had been almost negative. There had been no very marked prostration; there had been a slight amount of indigestion, occasional green stools, a slight but not constant cough. There had been no evidence of local pain and no cerebral symptoms or vomiting. Pneumonia had been suspected, but no physical signs had been found in the chest. No diagnosis of this case had been made at the time. Quinine had been given without any apparent effect. Baths had been used and these had reduced the temperature temporarily. The child had not seemed to be very ill, and, excepting when the temperature was high, she had been quite bright and apparently comfortable. She also had had a fair appetite. The continued high temperature and the character of the breathing had led to an examination of the lungs, which had shown that there was absolutely no sign of pneumonia. Only three or four drachms of urine could be obtained for examination, but this specimen had shown a heavy deposit of pus, a small quantity of albumin, a strongly acid reaction, and the presence of quite a large number of epithelial cells, principally from the bladder. There had been no casts and no dropsy present. Up to this time the urine had been abundant. There had been no tenderness over the region of the kidneys, no evidence of tumor, and no signs of cystitis or vaginitis. Citrate of potassium in two-grain doses had been given every two hours. Two days later the first natural fall in temperature had begun. Twenty-four grains of citrate of potassium were then being taken daily. The exact amount of urine passed could not be ascertained, but the patient had wet twenty-eight napkins in twenty-four hours. Six drachms of urine had then been collected for examination, and had shown a deposit of pus of about eight per cent. of the bulk of the urine. On December 12th the temperature had touched the normal point for the first time. The quantity of pus in the urine had diminished daily, and an occasional hyaline cast had been found. The reaction of the urine had become alkaline under the influence of the potassium. The improvement had continued, and the quantity of pus gradually had diminished until it had practically disappeared at the end of three weeks. Sixteen months later the patient had been found to be free from all urinary symptoms and to be in good general condition.

The third case was that of a female child, nine months of

age, seen in Dr. Holt's private practice. The child had been under observation since birth. The temperature at first had been 100° to 101° , and the child's nutrition had been excellent. On February 8, 1894, it had been suddenly taken ill about noon with a distinct chill. The speaker had seen the case a few minutes later and before the chill had passed off. The lips and finger nails had been blue, and there had been a distinct chattering of the teeth. There had also been considerable prostration and a rectal temperature of 103° . Reaction had been established by the use of hot baths and stimulants, but an hour later the temperature had been found to be 104° . At five o'clock on the same day the temperature had been 99.5° and all symptoms had disappeared. At seven o'clock of the same evening the temperature had been normal and the child had been sleeping quietly. A little after midnight a second chill, like the one at noon, had occurred, but it had not been quite so severe. At seven o'clock of the next morning the temperature had been normal, and a second physical examination had resulted in an absolutely negative result. The spleen had not been enlarged. Quinine had been ordered in doses of two grains of the bisulphate of quinine every three hours, given by the rectum. By 1 P. M. the temperature had reached 103° and there had been an abortive chill. The temperature had fluctuated during the evening, and at 10 P. M. had again been at 105° , and the child had remained considerably prostrated. As soon as the temperature had fallen the child had begun to laugh and play as usual and seemed normal in other respects. The bowels had continued to move regularly. On the third day there had been two chills and a fall of temperature in the course of a few hours with profuse perspiration. On the fourth day there had been a slight straining and apparent pain on micturition. A specimen of urine had been obtained for examination and had shown it to be strongly acid in reaction and to contain a deposit of pus representing a fifth of the entire bulk of the specimen. The specific gravity had been 1.012. Citrate of potassium had been administered. During the following day the temperature had fluctuated between 101° and 105° , and the urine had appeared to be turbid from the quantity of pus present. At this time the child's general condition had not seemed to be so good, but the symptoms of irritation about the bladder had entirely disappeared. The temperature had continued to vary rapidly between 98° and 106° in the course of a few hours, and had been irregular as to time of occurrence. The dose of potassium had been increased and the urine had become alkaline as a result. The quantity of pus had been still large—two to three ounces daily. The urine had also contained a small quantity of renal and bladder epithelium, and a great many epithelial cells of the intermediate variety. A malarial element being suspected, quinine had been continued and was given hypodermically to the extent of eighty grains of the bisulphate of quinine in a period of thirty-two hours. No bad result had followed the employment of these immense doses. The wide fluctuations of temperature had then ceased, the temperature ranging between 101° and 103° . The patient had had no more chills, the potassium had been continued in quantities of twenty to twenty-four grains daily, and as much lithia water as the patient desired. On February 17th it had been noticed that the urine had a specific gravity of 1.007, was faintly alkaline in reaction, contained a small quantity of albumin and immense numbers of pus corpuscles with a few casts. On February 22d the temperature had been below 100° for the first time, and the quantity of pus had diminished. At no time had there been redness, tenderness, or tumor in the region of the kidney. On February 23d the temperature had taken a sudden jump to 103.5° , but without chill or other accompanying symptoms to explain this sudden change. Quinine had been given. On March 1st all drugs had been stopped, as the pa-

tient had seemed to be convalescent. There had been still a faint deposit of pus to be seen under the microscope. The general improvement had continued, but on March 9th the temperature had again risen to 101.5° . This had been attributed to a slight sore throat, as the urinary condition had remained unchanged or was possibly slightly improved. On March 12th the temperature had risen to 103.5° . Quinine had again been begun and twelve grains had controlled the temperature. On March 14th the child had been taken to Lakewood and the quinine had been continued. At the end of two weeks the child had gained a pound and a half in weight. On May 15th it had been noted that the child was in splendid condition. The urine had been examined at intervals and had been found to still contain some pus cells, but was otherwise normal.

In conclusion, Dr. Holt said that the first case had been a simple one in which the diagnosis had been quite clear, and there had been no reason to suspect complication. The second case, however, had been more complicated. There had been a suspicion here of malaria, but it had been interesting to note that this case had occurred when *la grippe* had been present in New York city, and this might have been an ætiological factor in the case. The third case had been in all respects remarkable. The quinine had had no effect upon the temperature during the first few days, and there had been no enlargement of the spleen at any time. The patient had not been exposed at any time, so far as had been known, to any malarial poison. The blood had not been examined.

Dr. A. SEIBERT, of New York, asked Dr. Holt upon what he had based his diagnosis in the first case between purulent cystitis and pyelitis, and in the other case between purulent inflammation of the kidney and purulent pyelitis. He said that in pyelitis pure and simple, without nephritis, there could be but one way of infection, and that was through the bladder upward. The very high temperature, the chills, the character of the findings, especially of the epithelial cells in the first case, gave him the impression that it might have been one of nephritis.

Dr. OSLER said that there were instances in children of dilatation of the pelvis of the kidney without calculus and without tuberculosis. He thought malaria might be definitely excluded even without an examination of the blood where there was no enlargement of the spleen, and where the symptoms resisted the effect of quinine.

Dr. CAILLÉ asked Dr. Holt if he was positive that there was not a vulvo-vaginal inflammation in the two girls.

Dr. HOLT replied that he was positive on this point.

Dr. FORCHHEIMER said that his practice differed from Dr. Osler's as to the question of quinine in diagnosis. He had seen cases time and time again in which an intermittent fever of low grade had not been affected at all by the administration of quinine. He had also recorded in Keating's *Encyclopædia* the fact that the spleen might or might not be enlarged in cases of malarial poisoning.

Dr. HOLT said that the absence of mucus, the fact that the urine had been acid all the time, and that there had been evidence of vulvo-vaginal inflammation, had seemed sufficient to exclude cystitis in the first case. The second case might have been malarial. He agreed with Dr. Osler regarding the points in the diagnosis of malarial disease in children.

Mirror-writing.—Dr. GEORGE N. ACKER, of Washington, exhibited a "mirror-writer" in the person of a colored boy, ten years old, whose writing could only be read when reflected in a mirror. This boy had been born prematurely, and had been very delicate during his early infancy. He had had many convulsions, and, after receiving a fall on his head when three years of age, these convulsions had become more frequent and severe. He had also had a persistent chorea. He now wrote with both

hands with equal dexterity. There was a history of insanity on the maternal side of the family, and his father was decidedly neurotic.

Book Notices.

Le Cancer. PAR DANIEL CRITZMAN, préparateur au laboratoire d'anatomie pathologique de la Faculté de médecine. Paris: G. Masson, 1894. Pp. 5 to 164. [Prix, 2 fr.] [*Encyclopédie scientifique des aide-mémoire.*]

This author employs the term cancer to mean a tumor developed at the expense of pre-existing epithelium, the fundamental element of cancer being the epithelial cell. The characteristic of each cancer is not the epithelial cell itself, which forms the point of departure of the constituent element of the tumor, but rather the shape of the cells, their arrangement in the tumor, their diffusion in the neighboring tissue, and the development of their connective-tissue framework. The author says that those neoplasms the stroma of which is formed by a more or less vascular connective tissue, that recall by their structure certain glandular organs, if not certain glands, should be designated as organoid tumors.

From lining epithelium two forms of epithelioma develop—pavement epitheliomata and cylindrical epitheliomata. The first group includes lobulated, tubulated, and periform epitheliomata; the second, cylindrical epitheliomata and cylindroma.* Clear descriptions are given of each of these neoplasms.

The author reviews the theories of the histogenesis of cancer, describes the cancer cell, and gives a *résumé* of the theories of the ætiology of cancer. A final chapter discusses the treatment of these neoplasms.

The volume is well illustrated and excellently adapted to its intended purpose of giving the reader the salient features of our present knowledge of epitheliomata.†

Clinical Lectures on Pædiatrics, Delivered in the Vanderbilt Clinic during the Session of 1892-'93. By A. JACOBI, M. D., Clinical Professor of the Diseases of Children in the College of Physicians and Surgeons, New York, etc. New York: Bailey & Fairchild, 1893.

This volume of stenographic reports of Professor Jacobi's lectures, that were originally published in the *Archives of Pædiatrics*, will undoubtedly prove acceptable to a larger circle than that composed of his students and the readers of the above-mentioned journal. As the author states, they possess the varied qualities incidental to extemporaneous discourses, and give a fair idea of the character of his clinical instruction.

These twenty-two lectures include a consideration of most of the familiar and of some of the rarer diseases of children. It may surprise some to note lectures on varicella, measles, whooping-cough, scarlatina, and diphtheria; but, as the author states, benevolent institutions contribute a good deal to the spread of communicable diseases, patients with such diseases coming to the dispensaries all the time and remaining for longer or shorter periods of time, thus sowing the disease among other children to carry to their homes.

The volume, we feel confident, will prove an acceptable contribution to pædiatric literature.

* From glandular epithelium develop adenoma or typical epithelioma, adeno-carcinoma or metatypical epithelioma, and carcinoma or atypical epithelioma.

BOOKS, ETC., RECEIVED.

La Syringomyélie. Maladie familiale. Par les Drs. René Ver-Hoogen et Paul Vanderdelde. [Extrait des *Annales* publiées par la *Société royale des sciences médicales et naturelles de Bruxelles.*]

Stomatitis Neurotica Chronica. By A. Jacobi, M. D. [Reprinted from the *Transactions of the Association of American Physicians.*]

Text-book of Anatomy and Physiology for Nurses. Compiled by Diana Clifford Kimber, Assistant Superintendent, New York City Training School, Blackwell's Island, N. Y., etc. New York: Macmillan & Co., 1894. Pp. xvi-268. [Price, \$2.50.]

A Manual of Human Physiology. Prepared with Special Reference to Students of Medicine. By Joseph H. Raymond, A. M., M. D., Professor of Physiology and Hygiene in the Long Island College Hospital, etc. With One Hundred and Two Illustrations in Text and Four Full-page Colored Plates. Philadelphia: W. B. Saunders, 1894. Pp. 7 to 382. [Price, \$1.25.] [Saunders's New Aid Series.]

Essentials of the Diseases of the Ear. Arranged in the Form of Questions and Answers. Prepared especially for Students of Medicine and Post-graduate Students. By E. B. Gleason, S. B., M. D., Clinical Professor of Otology, Medico-surgical College, Philadelphia, etc. Philadelphia: W. B. Saunders, 1894. Pp. 7 to 147. [Price, \$1.] [Saunders's Question Compend.]

La Pratique journalière de la médecine dans les hôpitaux de Paris. Maladies microbiennes et parasitaires—Intoxications—Affections constitutionnelles. Aide-mémoire et formulaire de thérapeutique appliquée. Par le Professeur Paul Lefert. Paris: Baillière et fils, 1895. Pp. 7 to 288. [Prix, 3 fr.] [Manuel du médecin praticien.]

A Handbook on Disinfection and Methods for the Prevention of Contagious Diseases. By E. T. Duke, M. D., Secretary of the Board of Health, Cumberland, Md. Cumberland, Md.: Harry K. Duke & Co., 1893. Pp. 3 to 56.

Transactions of the American Surgical Association. Volume the Twelfth.

Transactions of the American Gynecological Society. Volume XIX. For the Year 1894.

Addresses, Papers, and Discussions in the Section in Surgery and Anatomy at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, Cal., June 5 to 8, 1894.

The Medical Register of New York, New Jersey, and Connecticut for the Year commencing June 1, 1894.

Clinical Observations on Erosions of the Stomach and their Treatment. By Max Einhorn, M. D. [Reprinted from the *Medical Record.*]

Medical Archæology. The Sanitary Regulations of Ancient Egypt and Judea. From the work of Dr. Beugnies Corbeau. Translated by Thomas C. Minor, M. D. [Reprinted from the *Cincinnati Lancet-Clinic.*]

Why Chronic Urethritis is Ordinarily Difficult of Cure, and an Efficacious Method of Curing it. By Bransford Lewis, M. D., St. Louis. [Reprinted from the *Tri-State Medical Journal.*]

Can Physicians honorably accept Commissions from Orthopædic Instrument Makers? By H. Augustus Wilson, M. D., Philadelphia. [Reprinted from the *Philadelphia Polyclinic.*]

Restriction of Tuberculosis. By J. H. Davisson, M. D. [Reprinted from the *Journal of the American Medical Association.*]

Stricture of the Male Urethra. By Millard H. Crawford, M. D., San Francisco. [Reprinted from the *Journal of the American Medical Association.*]

Sanitation of Dwellings, Public Buildings, and Thoroughfares. By J. H. Davisson, M. D., Los Angeles. [Reprinted from the *Proceedings of the Second Annual Sanitary Convention.*]

Fifty Cases of Rectal Surgery. By B. Merrill Ricketts, M. D. [Reprinted from *Mathews's Medical Quarterly.*]

Lectures on Biology. Delivered before the Catholic University of America by Dr. R. W. Shufeldt. [Reprinted from the *American Field.*]

Behandlung des Empyems der Pleura mit Perrigation des Thorax. Von Dr. J. Michael in Hamburg. [Sonder-Abdruck aus *Deutsche Medicinal-Zeitung.*]

Behandlung des Anasarka. Von Dr. Michael in Hamburg. [Sonder-Abdruck aus der *Deutschen medicinischen Wochenschrift.*]

Color Blindness in Asiatics. By F. B. Stephenson, U. S. N. [Aus den *Mittheilungen der deutschen Gesellschaft.*]

Miscellany.

Blue Spots in Typhoid Fever.—The *Australian Medical Journal* for August 20th publishes an article on this subject by Dr. A. V. M. Anderson, of Melbourne, in which he remarks that this rash is one of the least commonly seen in the course of typhoid fever, and probably escapes observation in a number of cases because of its indistinctness. It seems to have been originally observed by the French physicians. Trousseau remarked its frequent occurrence in mild cases, but could not say whether it was a mere coincidence or whether the blue spots were characteristic of a mild form of the disease. Tanner mentioned them as faint bluish stains on the abdomen. Dr. Austin Flint called them bluish patches of irregular form from three to eight lines in diameter, occurring on the abdomen, back, and thighs, and thought they were more likely to be found in mild than in severe cases. In 1880, according to the *Medical Times and Gazette*, says the writer, a French physician, Dr. Duguet, stated that these spots were found in a variety of affections, and were more frequently present in young men with gonorrhœa than under any other circumstances, if they were not altogether peculiar to this disease. Dr. Duguet also stated that Dr. Mourson had shown them to be due to the presence of pediculi pubis, and the inoculation of the crushed bodies of these insects was said to be capable of producing the spots. The *Medical Times and Gazette* seems to ridicule this opinion, says the author, but Strümpell, in his *Text-book of Medicine*, also ascribes the presence of the spots to the action of the pediculi pubis. Murchison and other writers believe that the rash is not peculiar to typhoid fever.

When Dr. Anderson was at the Alfred Hospital he noticed these blue spots in eight out of nine hundred and fifteen cases. In five of them they were present when the patient was admitted into the hospital, the duration of the disease before admission varying from five to fifteen days. In other cases they appeared several days after—on the fifteenth, twenty-first, and forty-second days respectively. In all but one of the eight cases they showed themselves as faint blue, somewhat rounded marks, varying from the size of a pea to that of a threepenny piece. They occurred irregularly, usually on the abdomen and over part of the chest, but occasionally elsewhere—on the buttocks, on the thighs, and once over the scapulæ. They did not rise above the level of the skin, and did not become less distinct on pressure. They disappeared usually in a week or ten days.

In one case the spots had a slightly reddish color when they first appeared, the color changing to the characteristic blue in a day or two. In two of the cases relapses occurred, but the spots did not appear during the relapse. Four of the patients had a mild form of the fever, two had moderately severe attacks, and two had very severe attacks. One patient died in four days after admission.

Regarding the nature of these spots, the author could see no evidence of the presence of pediculi. The rash did not occur in patients who were specially dirty. There was no sign of the insect itself, and there was an utter absence of the irritation and characteristic eruption due to the parasite. The marks were subcutaneous, and in three cases developed several days after the patient's admission to the hospital and under circumstances where the strictest cleanliness was observed.

The author had not noticed similar marks on the bodies of patients suffering from other diseases, and had found no mention of them in connection with any disease, except Dr. Duguet's statement that they were found in patients with gonorrhœa. The fact that they have been observed over the course of subcutaneous veins, says Dr. Anderson, would appear to indicate that they are due to some exudation from the vessels, owing, probably, to the altered condition of the blood, which shows itself in the tendency to epistaxis seen in so many cases of typhoid fever at an early stage. They appear, however, to be of very little clinical significance, being seen at all stages of both mild and severe attacks.

The Treatment of Warts.—The *Union médicale* for September 20th says that when one has to deal with isolated warts, they may be taken off with a scoop; a rather abundant hæmorrhage follows, which may be arrested by compression or by cauterization. When warts exist in large numbers, this procedure is no longer applicable, particularly on account of the numerous cicatrices that follow its employment. In these cases the better way is to shrivel the excrescences with nitric acid. The tincture of thuja is also a very efficacious topical application.

In cases of condyloma the small tumors may be dusted with powdered resorcin or salicylic acid; they may also be covered with a plaster containing these substances in the proportion of from ten to twenty per cent. When the face is studded with a large number of these little warts, which often appear suddenly, Dr. Kaposi covers them with a piece of flannel spread with a layer of black soap. This is left on the warts for twenty-four hours and adheres to the skin, gradually becoming detached with the warts.

Another very good application is the following mixture: Flowers of sulphur, 20 parts; glycerin, 50 parts; pure concentrated acetic acid, 10 parts. The warts are painted with this mixture for several days without taking off the first layer, and gradually the excrescences dry up and become detached.

For keratosis of the palms of the hands and the soles of the feet plasters of resorcin and salicylic acid are also efficacious. If the case is one of molluscum-like nævus it is better to employ electrolysis. The needle connected with the positive pole is plunged into the tumor, and a current is passed of from one to two milliampères for about thirty seconds. This operation is repeated at the end of eight and fifteen days. When the nævus is very large, the galvano-cautery is preferable.

Electric Cataphoresis.—At a recent meeting of the *Société des sciences médicales*, of Lyons, a report of which appears in the *Lyon médical* for September 23d, M. Destot read a paper on this subject and presented the following conclusions: 1. Electric cataphoresis exists, but it is not to be compared to that which takes place in electro-chemistry in media separated by

diaphragms. The human organism plays an important physiological rôle which depends especially on the constitution and on the functions of the skin. It is a question of medicinal polarization on the cutaneous cells, which act as accumulators, and afterward render by degrees to the lymphatic and sanguineous circulation the elements with which they have been impregnated. 2. The quantity of medicaments absorbed depends not only on the electric intensity employed, which, beyond a certain degree, has only a relative importance, but especially on the extent of the skin which has been subjected to the electric action, and above all on its physiological capacity of absorption. This capacity varies according to the density of the solution used and to the nature of the medicaments employed. 3. Cataphoresis has the following advantages: 1. It produces its maximum effects upon the part submitted to the electric bath. 2. It is felt secondarily through the entire organism. 3. It subjects the organism to the influence of medicaments for a greater length of time than any other method of absorption, as the limit is reached only when all the medicinal principles with which the cells of the skin have been impregnated have been given up to the organism. 4. The therapeutic action depends on two inseparable elements: The action of the constant current and the action peculiar to the medicament used. The two effects are combined in such a way that it is impossible to obtain the same results by the isolated action of each. 5. The action of cataphoresis manifesting itself with its maximum at the entrance of the current, it is the electro-positive bodies which will have greater chances of passing. Their effect will be proportional to their electrolytic power and, consequently, to their conductivity. Nevertheless, one must take into account, on the one hand, the idiosyncrasies and, on the other hand, the particular value of certain salts, which experimentation alone can ascertain. 6. The intimate nature of the processes by which the medicaments act remains to be made known: Oxidations due to the continued current or chemical combinations from the reaction of the medicaments.

All hypotheses are permitted, says M. Destot, and it is to be presumed that the phenomena produced are very complex, and should depend on the nature of the skin and the organic cells, and also on their vascularization and innervation. It is impossible to apply to cataphoresis the laws of electrochemistry, which are incessantly changed by physiological processes.

Nitrate of Silver in Phthisis.—The *Lancet* for September 29th contains an article on the uses of nitrate of silver of which the following is the substance: Since the introduction of bromides, the internal employment of nitrate of silver has been so much discarded that it is surprising to find it once more recommended in a chronic disease like phthisis. The reasons for nitrate of silver having dropped out of fashion as an internal remedy are so well known that it is unnecessary to dwell upon them, and an increased experience with this drug in phthisis will emphasize the desirability of trusting chiefly to its external action. But Dr. Crocq, of Brussels, who confesses that he has but little belief in the microbic origin of diseases, and who therefore naturally looks upon a great many of the more recent methods of treating phthisis by inhalations and subcutaneous injections of creosote or other antiseptics as altogether wrong in principle, has reported to the Belgian Academy of Medicine the result of many years' experience in treating phthisis with nitrate of silver internally. He has convinced himself that it is the drug which has the most real effect on the disease. According to him, it acts on the digestive tract, increasing the appetite and causing the food to be more readily digested. It also acts on the respiratory apparatus, diminishing the cough, the expectoration, the feeling of oppression, and the sweats.

He maintains that the immediate effect of nitrate of silver is to cause contraction of the small vessels, thus diminishing the supply of blood to the tissues, and hence that it is useful in epilepsy, in chronic cerebral congestion, and in various forms of chronic myelitis. It is suggested that it acts on the bronchi and lungs in the same manner. It can be suitably combined with opiates, henbane, bitters, and other drugs. The dose is from one seventh to one third of a grain during the twenty-four hours. The use of this drug was proposed many years ago as a treatment for phthisis, both pulmonary and laryngeal, but did not meet with much acceptance at the hands of the profession.

Dr. Crocq's paper is accompanied by a report of twenty-one cases of tuberculosis in which nitrate of silver appears to have acted very beneficially.

Drooling in Infants.—The *Journal des praticiens* for September 26th contains a review of a thesis on this subject by M. J. R. Sanchez de Silvera. The writer remarks that the results of the author's observations are that the physician (on the evidence of writers, it is true) allows himself to be persuaded to admit certain ideas which have been current among the non-medical public on the subject of the salivary secretion.

This function is established much earlier than is supposed. It may appear as early as the twentieth day, and, although it may occur frequently, drooling should not be classed among absolutely physiological phenomena. If a sufficient investigation is made, it will be found that infants who drool have been allowed the bad habit of sucking various objects, or that there is some defect of alimentation. This daily drooling of nurslings should not be confounded with that which occurs in the night, which is due to adenoid growths. It is not a matter of indifference whether an infant drools or not, as the constant moisture thus engendered contributes to the development of repeated bronchitis, and the writer thinks that medical intervention should certainly be employed when an infant drools, but, so far as the review is concerned, he does not intimate what that intervention should consist in.

The Bismuth Subnitrate of Commerce.—The *Lyon médical* for September 30th publishes an abstract of an article on this subject in the *Bulletin de la Société de pharmacie de Bordeaux*, in which M. P. Carles warns pharmacists against the partiality that they accord to light bismuth subnitrate, and reminds them that in order that the heavy bismuth subnitrate, that is to say, the normal, may exert all its efficiency, it is necessary that it should be administered only in a state of intimate division. The light subnitrate contains a certain quantity of carbonate, which sufficiently explains the relative lightness of the product and its poverty in nitric acid. When the therapeutic action of bismuth subnitrate is closely studied, it is evidently not a matter of indifference that the proportion of nitric acid is small.

According to M. Gayon, M. Dupetit, and M. Dubourg, bismuth subnitrate is a powerful bactericide. It is to this primordial action that it owes those virtues which have been for a long time universally appreciated in gastro-intestinal diseases that are the result of morbid fermentation. The good effects, says M. Carles, which have been obtained from its employment in urethritis come from no other cause. It owes, also, its efficaciousness to the independent action of its oxide and its acid. Of its oxide, because it has the property of saturating the acid supersecretions of the stomach; of its acid on account of the same qualities and, finally, on account of the slow chemical changes which it undergoes in the intestine. From the time it comes in contact with these digestive regions the subnitrate always meets with hydrosulphurous emanations which, although transforming it into the black sulphide, set a corresponding pro-

portion of nitric acid free. Now, because of its own acidity, the nitric acid acts directly on the intestinal mucous membrane as an astringent; but to this topical action its special antiseptic virtues may be added, for, according to M. Duclaux, the presence of a trace of nitric acid in an organic solution arrests the evolution of a great number of microbes and hastens their destruction. Meanwhile, its bactericidal action does not stop there; from the time that it comes in contact in its intestinal course with fresh hydrosulphurous vapors, it is reduced and transformed into nitrous vapors the special antiseptic action of which in regard to the bacteria which secrete putrid gases has been shown by M. Girard and M. Pabst. It will be difficult, adds M. Carles, to deny their presence in the various flatulent forms of gastro-enteritis. That all these conditions may be realized, the oxide of bismuth must bring with it the entire portion of acid with which chemistry has vested it in order to make the insoluble combination known as the subnitrate; again, it is necessary that this combination should be in a state of exceedingly fine division.

The Employment of Cider and Perry in Health and in Sickness.—The *Journal des praticiens* for September 29th contains a review of a work by M. F. Aury in which the writer remarks that the author of this original thesis aims, with praiseworthy intentions, to restore to these two drinks the recognition of their prophylactic merits and curative action which seems to him to have been too nearly lost. As an alimentary drink, he advises weak cider, which is free from pathogenic microbes, well tolerated by the stomach, and a prophylactic of the uric-acid diathesis. It is the most eligible drink, he says, in intermittent fever, in vomiting, in the uric-acid diathesis, and in arthritis. Pure, it is a tonic, and is useful in chlorosis, in anæmia, and for convalescents. It is also, he adds, a topical antiseptic in varicose ulcers and recent wounds. Medicinal ciders may be prepared by the maceration or solution of certain drugs in cider, such as calumba, gentian, cinchona, and various antiscorbutics or even diuretics, which are comparable to the wines of the *Charité* or the *Hôtel-Dieu*.

With regard to perry, the author recommends this less heartily. It may, however, he says, when it is effervescent, take the place of champagne in the hygienic therapeutics of diseases.

A Deserved Rebuke to a Hospital Governing Board.—The *Normandie médicale* for October 1st announces the death of an old nurse at the *Hospice-Général* of Rouen. Virginie Salmon, or Virginie, as she had always been called, was a familiar and original figure, and for thirty-five years she had had charge of the delivery ward at the *Maternité*. She had assisted nearly thirty thousand indigent women in their confinements. She was a woman of remarkable tact, and, in spite of her mannish aspect and abrupt manner, she was patient and gentle with all who came under her care. She belonged to a race no longer seen at the present day, servants of the poor, who pass their lives in the hospitals, and whose world is bounded by their walls. The *internes* of the *Hospice-Général*, wishing to show their appreciation of such long and faithful work, appealed to the chiefs of the service for a proper recognition of the old nurse's services, and made sure that Virginie should have a decent burial. This, it seems, the governing board of the hospital had hesitated to do, fearing to establish an *embarrassing precedent*; as if, says our contemporary, old servants were so numerous in the hospitals of Rouen.

Cold Baths during Menstruation.—The *Gazette de gynécologie* for October 1st publishes an article on this subject by M. E. Depasse, who remarks that for the past ten years he has

advocated this practice, and considers that it is evidently a matter of habit. He says that it should be begun prudently by taking short salt-water baths, beginning from the time when menstruation has stopped and continuing them until the next period; then this preparatory stage may be shortened to eight days, which, says the author, is sufficient. It is evident that it would be very imprudent to begin this treatment for the first time during menstruation, and it should never be attempted; but, if women have accustomed themselves to cold bathing every day for eight days or longer, up to the time when menstruation sets in, they may continue to do so without danger. M. Depasse had tried the experiment in the case of a young girl who was very anæmic, and the results obtained had been excellent. Many other cases might be cited, he says, and he quotes from M. Houzel, who gave an address on this subject at the recent congress held at Boulogne, in which he dwelt upon the advantages to be derived from cold salt-water baths during menstruation if the subjects were accustomed to it, and gave the following conclusions: 1. Cold salt-water baths facilitate the menstrual flow. 2. They increase the duration of genital life. 3. They increase fecundity in a remarkable manner.

The New York Academy of Medicine.—The special order for the last general meeting, on Thursday, the 18th inst., was a paper on Defective Vision in Relation to Crime, by Dr. Frank Van Fleet.

At the next meeting of the Section in Laryngology and Rhinology, on Wednesday evening, the 24th inst., the following papers will be read:

A Case of Pharyngeal Sarcoma Successfully Treated by Erysipelas Toxines, by Dr. W. B. Johnson, of Paterson, N. J.; Report of a Case of Sarcoma, by Dr. W. F. Chappell; and a Report of a Case of Large Tumor (Carcinoma?) removed by the Cold Snare from the Hyoid Fossa, by Dr. S. Sherwell, of Brooklyn. Dr. J. W. Gleitsmann will present a patient and Krause's and Heryng's instruments for the surgical treatment of laryngological tuberculosis, also specimens removed with them.

At the next meeting of the Section in Obstetrics and Gynecology, on Thursday evening, the 25th inst., specimens and instruments will be presented, also reports of cases, and a paper on The Extirpation of the Uterus and Annexa in Pelvic Suppuration and Post-puerperal Septicæmia will be read by Dr. Herman J. Boldt.

The Kentucky School of Medicine.—Commenting on a published statement that the school had been dropped from the membership of the Association of American Medical Colleges, the *Medical Progress*, of Louisville, says:

"The real truth of the matter is that the Kentucky School of Medicine was never a member of the American Medical College Association, but the requirements in the catalogue recently issued are higher than are the requirements of that association. The school has been conducted in strict accordance with the requirements observed by most successful and reputable colleges and adheres strictly to the three-year course, and no school has been more respected by the honorable members of the medical profession. In laboratory, didactic, and clinical work the school has adopted the most approved methods, and now that the faculty have completed a large hospital adjoining the college no school in the country can offer better practical and clinical advantages. The college is a member of the Southern Medical College Association, and its requirements are really higher and more rigid than those of either of the college associations."

The Malicious Use of Snake Poison.—The *Indian Medical-chirurgical Review* for July contains an editorial in which it is

stated that it is not at all unusual for the various chemical analyzer's departments to receive pieces of rag removed from the rectums of dead cattle, and alleged to have been used for poisoning them. These rags have been received in Bombay and elsewhere, and on account of the non-detection of any of the known poisons the materials have been thrown away. The late Dr. Norman Chevers alludes to such cases, and quotes them as examples of the "ignorant suspicions of the peasantry." But it was reserved for Mr. Hankin to discover the fact that these suspicions were well grounded, and that the rags did contain one of the most virulent of animal poisons, for the extraction of which not a little ingenuity had been used by the ignorant and low-caste *Chamar* of India. In his last report, the article goes on to say, Mr. Hankin describes how, after failing to detect any poison in a rag sent to him, he boiled a piece of it in nitric acid, and, on the liquid turning yellow, it struck him that the change of color was an indication of the presence of proteids, and he thought that snake poison might be present. He then injected a watery extract of about a square inch of rag into a rabbit, and the animal died with all the symptoms of snake-poisoning within about five minutes. By other tests, chiefly of a negative kind, he came to the conclusion that the intensely active poison found to be present was proteid in its nature, and very probably identical with snake poison. Mr. Hankin subsequently communicated with Sir Joseph Fayrer, who stated that snake venom would be just as poisonous when placed in the rectum as when inserted under the skin, for it could be readily absorbed by any mucous membrane, and that it was only in the stomach that it became inert on account of the acidity destroying it. He also described a method of extracting snake poison as follows: A cobra is confined in a *chattie* underneath which a fire is lighted. A plantain is then put into the *chattie*, and the snake, being irritated by the heat, bites the plantain, which becomes thoroughly impregnated with cobra venom. But Sir Joseph Fayrer did not know for what purpose such a poisoned plantain could be used.

Mr. Hankin found that the rags impregnated with snake poison were smeared over with a whitish, putty-like substance the nature of which he was not able to determine, but which, from experiments made by him, appeared to possess the same physical characters that crushed and dried plantains would have when spread on a dirty rag. Thus it seems that Mr. Hankin's original surmise was correct, and he has been able to discover this unique method of destroying cattle.

The question naturally arises, continues the article, whether snake venom has ever been used for poisoning man. Could any of the many mysterious deaths in India and elsewhere be thus accounted for? Could analogy lead to the solving of the problem of the poison employed to get rid of some hated enemy, who, it is said, used to succumb after a mere friendly handshake, or from the scratch of a nail conveniently placed on a window-sill? These are some of the thoughts suggested by Mr. Hankin's interesting report, and it might be well for him to follow up this discovery, to see whether human ingenuity would go so far as to utilize the poison on the human being.

The Treatment of the Itch.—The *Revue internationale de médecine et de chirurgie pratiques* for September 25th publishes the following formulas prescribed by M. Feulard in order to prevent scratching among children whose skin can not tolerate a very irritating procedure: Friction is applied to the entire body, and particularly to the regions to which the *acarus* is partial, with the following ointment: Fresh lard, 750 grains; balsam of Peru, 75 grains; naphthol, 15 grains. The next morning the parts should be lathered with ordinary soap and then dusted with powdered starch. In one case, that of a child

fifteen years old, who had suffered for a long time with the itch, this treatment caused the intense itching to disappear very rapidly, and at the end of about eight days recovery was almost complete; however, by way of precaution, the treatment was continued for the same length of time. Afterward, in order to soothe the slightly irritated skin, the following mixture was applied: Vaseline, 600 grains; zinc oxide, 60 grains; distilled lactuca water, 150 grains.

The Action of the Ice-bag applied to the Præcordial Region in Cases of Tachycardia of Infectious Origin.—The *Revue internationale de médecine et de chirurgie pratiques* for September 25th contains a review of a work on this subject by M. E. Isnel. The author remarks that the application of the ice-bag to the præcordial region produces an increase of the systolic force of the heart by acting directly on the myocardium, an increase of the blood pressure, diminution of the number of the cardiac pulsations, and the disappearance of irregularities of the pulse, and, finally, it favors the pulmonary circulation and the respiration.

Two Methods of Aborting Eruptions of Acne.—The *Revue internationale de médecine et de chirurgie pratiques* for September 25th says that in cases of acne of the face it is often very important to arrest the development of the nodules as fast as they appear. For this purpose it is advantageous to paint each lesion with a mixture of one part of ichthyol and three parts of water, which is to be allowed to dry on the skin, or with a little pure carbolic acid, previously liquefied by heat, and afterward cover the part with a layer of flexible collodion. The first method, recommended by Dr. W. Jamieson, of Edinburgh, is especially applicable in eruptions of acne which are still papular, while the second, recommended by Dr. Smith, another English dermatologist, should be preferred in cases of pustular eruptions.

The Treatment of Genital Herpes.—The *Presse médicale* for September 22d contains the following formulas which, according to M. Besnier, should be employed in this disease: If the herpes is dry, frictions are made with an ointment containing 375 grains, each, of lead plaster and lanolin, and 75 grains of lard; or 300 grains, each, of lanolin and gray ointment and 150 grains of olive oil. If the herpes is moist and weeping, the parts should be bathed with boric-acid water or a weak solution of carbolic acid and water, and afterward dusted with the following powder: Starch, $3\frac{1}{4}$ oz.; bismuth subnitrate, 15 grains; tannic acid, 75 grains.

Exalgine in Chorea.—In a recent number of the *Archiv für Kinderheilkunde* Dr. Mettenheimer, of Schwerin, relates two cases of chorea in which he thinks the duration of the disease was much shortened by the use of exalgine in doses of from a grain and a half to two grains and a quarter three times a day. The additional treatment employed was that customary in the hospital, and consisted of nutritious diet, malt baths twice a week, iodide of iron and cod-liver oil, and systematic gymnastics.

Peroxide of Hydrogen.—In an article on this drug published in the July number of the *Louisville Medical Monthly* Dr. L. D. Kastenbine the author says: "Of the various brands of commercial dioxides I have examined, I find Marchand's to be the one which yields the largest amount of available oxygen under all conditions of exposure, and the one which contains the minimum percentage of free acid. All the marketable articles I have seen are free from barium compounds, but the majority do not come up to the fifteen-volume standard, but are six-, eight-, ten-, and twelve-volume solutions."

Lectures and Addresses.

THE TEACHING OF ANATOMY.

By WILLIAM KEILLER, F. R. C. S. ED.,

PROFESSOR OF ANATOMY IN THE UNIVERSITY OF TEXAS;
FORMERLY LECTURER ON ANATOMY IN THE SCHOOL OF MEDICINE,
EDINBURGH, SCOTLAND.

LECTURE II.—METHODS OF TEACHING; PREPARATION OF SUBJECTS FOR DISSECTION.

In giving the following description of the methods of anatomical teaching which we use in the University of Texas it is necessary to premise that we have a three-years' strictly graded course, the students being required to adhere rigidly to the following roster:

FIRST YEAR.—*Monday*: Section work in chemistry from 8 to 11 A. M.; in histology, 9 to 11 A. M.; anatomy, 11 A. M. to 1 P. M.; physiological laboratory, 2 to 4 P. M.; physiology, 4 to 5 P. M. *Tuesday*: General pathology, 8 to 9 A. M.; section in histological laboratory, 9 to 10 A. M.; bandaging and minor surgery, 10 to 11 A. M.; dissecting, 11 A. M. to 1 P. M.; section work in chemical laboratory, 3 to 6 P. M. *Wednesday*: Section work in chemistry, 8 to 11 A. M.; in histology, 8 to 10 A. M.; anatomy, 11 A. M. to 1 P. M.; history of medicine, 2 to 3 P. M.; chemistry, 3 to 4 P. M.; physiology, 4 to 5 P. M. *Thursday*: Histology, 8 to 9 A. M.; section in histological laboratory, 9 to 11 A. M.; dissecting, 11 A. M. to 1 P. M.; chemistry, 3 to 4 P. M.; physical diagnosis, 4 to 5 P. M. *Friday*: General pathology, 8 to 9 A. M.; section in histological laboratory, 9 to 10 A. M.; materia medica, 10 to 11 A. M.; anatomy, 11 A. M. to 1 P. M.; physiological laboratory, 2 to 4 P. M.; physiology, 4 to 5 P. M. *Saturday*: Physics, 9 to 10 A. M.; dissecting, 10 A. M. to 12 M.; materia medica, 12 M. to 1 P. M.

SECOND YEAR.—*Monday*: Medical clinic from 8 to 9 A. M.; surgical operative clinic, 9 to 11 A. M.; pathology (half term), 11 A. M. to 12 M.; therapeutics, 12 M. to 1 P. M.; anatomy, 2 to 4 P. M.; physiology, 4 to 5 P. M.; obstetrics, 5 to 6 P. M. *Tuesday*: Medical clinic, 8 to 9 A. M.; surgical ward class, 9 to 10 A. M.; pathological laboratory, 10 to 11 A. M.; obstetrics (half term), pathology (half term), 11 A. M. to 12 M.; chemistry, 12 M. to 1 P. M.; dissecting, 2 to 4 P. M.; surgery, 4 to 5 P. M.; practice of medicine, 5 to 6 P. M. *Wednesday*: Medical clinic, 8 to 9 A. M.; surgical ward class, 9 to 10 A. M.; pathological laboratory, 10 to 11 A. M.; chemical laboratory, 11 A. M. to 12 M.; therapeutics, 12 M. to 1 P. M.; anatomy, 2 to 4 P. M.; physiology, 4 to 5 P. M.; practice of medicine, 5 to 6 P. M. *Thursday*: Medical clinic, 8 to 9 A. M.; surgical operative clinic, 9 to 11 A. M.; obstetrics (half term), pathology (half term), 11 A. M. to 12 M.; chemistry, 12 M. to 1 P. M.; dissecting, 2 to 4 P. M.; surgery, 4 to 5 P. M.; physiological laboratory, 5 to 6 P. M. *Friday*: Medical clinic, 8 to 9 A. M.; surgical ward class, 9 to 10 A. M.; pathological laboratory, 10 to 11 A. M.; pathology (half term), 11 A. M. to 12 M.; nervous diseases, 12 M. to 1 P. M.; anatomy, 2 to 4 P. M.; physiology, 4 to 5 P. M.; practice of medicine, 5 to 6 P. M. *Saturday*: Medical clinic, 8 to 9 A. M.; surgical clinic St. Mary's Hospital, 9 to 10 A. M.; chemical laboratory, 10 A. M. to 12 M.; dissecting, 12 M. to 3 P. M.

THIRD YEAR.—*Monday*: Medical clinic from 8 to 9 A. M.; surgical operative clinic, 9 to 11 A. M.; special pathology (half term), 11 A. M. to 12 M.; therapeutics, 12 M. to 1 P. M.; gross morbid anatomy, 2 to 3 P. M.; diseases of children, 3 to 4 P. M.; diseases of the skin, 4 to 5 P. M.; obstetrics, 5 to 6 P. M. *Tuesday*: Medical clinic, 8 to 9 A. M.; surgical ward work, 9 to 11

A. M.; obstetrics (half term), special pathology (half term), 11 A. M. to 12 M.; medical jurisprudence, 12 M. to 1 P. M.; ophthalmology, 2 to 3 P. M.; diseases of ear, nose, and throat, 3 to 4 P. M.; surgery, 4 to 5 P. M.; practice of medicine, 5 to 6 P. M. *Wednesday*: Medical clinic, 8 to 9 A. M.; surgical ward work, 9 to 11 A. M.; nervous diseases clinic, 11 A. M. to 12 M.; therapeutics, 12 M. to 1 P. M.; gross morbid anatomy, 2 to 3 P. M.; diseases of children, 3 to 4 P. M.; practice of medicine, 5 to 6 P. M. *Thursday*: Medical clinic, 8 to 9 A. M.; surgical operative clinic, 9 to 11 A. M.; obstetrics (half term), special pathology (half term), 11 A. M. to 12 M.; physical diagnosis, 12 M. to 1 P. M.; ophthalmology, 2 to 3 P. M.; hygiene, 3 to 4 P. M.; surgery, 4 to 5 P. M. *Friday*: Medical clinic, 8 to 9 A. M.; surgical ward work, 9 to 11 A. M.; obstetrics (half term), special pathology (half term), 11 A. M. to 12 M.; nervous diseases, 12 M. to 1 P. M.; gross morbid anatomy, 2 to 3 P. M.; operative surgery, 3 to 5 P. M.; practice of medicine, 5 to 6 P. M. *Saturday*: Clinic on diseases of ear, nose, and throat, 8 to 9 A. M.; St. Mary's Hospital surgical clinic, 9 to 10 A. M.; gynecological operative clinic, 10 A. M. to 12 M.

It will be seen that two hours daily in the first year and the same time in the second year are given to my subject. The junior students are required to get up all the bones and joints of the body and everything about the upper and lower extremities; the second year's students get up the trunk and head and neck, brain, eye, and ear, and the elements of embryology. To allow the majority of the students to gather, the first week of the session is occupied with lectures and quizzes on introductory matter. As soon as the class is formed (our matriculation roll is closed two weeks after the opening of the session) the junior students are divided into two sections, the one about to dissect the arm, the other the leg. *No student is allowed to touch a body till he has passed a satisfactory examination (taken fifty per cent.) on the bones of the part he is to dissect*, and the first fortnight after the formation of the class is occupied in daily lectures and quizzes on the bones.

Believing as I do that a minute knowledge of the bones must form the foundation of all good anatomy, the teaching on this branch is most thorough, and in his examination the student is required to mark with chalk most accurately the attachments of muscles and ligaments. To facilitate his studies the bone room is supplied with a set of accurately painted bones screwed to the tables in revolving glass cases, and a well-equipped bone library, if I may be allowed the expression, enables each student for a small deposit to take bones home for private study.

The bone examination satisfactorily over, dissecting commences. The regional method is followed, and a lecture precedes the dissection of each region, dissecting and lecture days usually alternating. The bodies keep indefinitely, and it takes till the Christmas holidays for each section to master the arm and leg respectively. Before the holidays each man has a written and separate oral examination on the part dissected, and after the holidays the sections change their parts, the whole class amalgamating to get up the skull bones, bones, and joints.

At the close of the session a final examination is held on the whole work of the year, and a term average of sixty

and final average of fifty per cent. is required to pass to the following year.

The method of proceeding in the second year is similar, the sections being abdomen and thorax in one, and head and neck in the other, and the class amalgamating for the study of the brain, eye, and ear, and embryology. At the end of the second year the final examination includes the whole body, while to insure some revision during the holidays students on entering the second year must pass an examination on the work of the previous session.

Preparation of the Bodies.—In the basement of the building, and connected with the dissecting room by an elevator for raising the bodies (the elevator also having a door to permit surgical bodies to be taken to the operative surgery class), is the preparing room. No anxiety need be felt about the shaft distributing odors, as there will be no offensive odor from a properly kept preparing room.

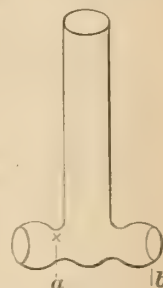
It should be a large room, with concrete floor sloping toward a central grating over a drain, with large sink, abundant water supply and rubber hose to reach at least to the center of the room. A dissecting table, side table, and shelving are necessary; and one or more tanks, according to the requirements of the school and the supply of bodies. Here I have to collect bodies all summer that I may have an efficient supply for the winter.

For the preservation of the bodies I have tried various fluids. When I commenced as lecturer on anatomy in the School of Medicine, Edinburgh, I had at the same time a considerable obstetric practice, and I at once felt the necessity of thorough preparation of my subjects that I might be a safe obstetrician.

Glycerin, wood alcohol, and a small proportion (one or two drachms to each body, I think) of corrosive sublimate was then being used at Surgeons' Hall, where I had been demonstrator. This gave fair but not quite satisfactory results. I used a quarter of a pound of corrosive sublimate dissolved in a gallon of wood alcohol, injected by a siphon apparatus into one common femoral artery at an elevation of about four feet, another gallon being used the following day if the body did not bleach throughout. The body was then wrapped in a sheet steeped in a strong corrosive-sublimate solution, and then in waterproof, and placed in a fairly close wooden tank. The result was an agreeable surprise. The method had the one fault that it whitened the bodies; but that I scarcely counted a fault. The muscles stood out in their natural prismatic form; the relations of vessels were beautifully preserved; but when the abdomen was opened the results were magnificent. The liver, instead of flopping out on the table when removed, remained firm and as perfect in form as one of His's plaster models; spleen, kidneys, adrenals, and pancreas maintained their proper outline. Pathological conditions and even abscess cavities were as recognizable and as readily investigated months after preservation as they would have been within twenty-four hours of death.

But what was effectual in a cold climate proved inefficient where an average winter temperature of 75° and an atmosphere almost saturated with moisture combine to

foster the growth of fungi. After various trials I have found the following method gives excellent results: The apparatus consists of a stoneware jar capable of containing four gallons, fitted with a wooden stopcock. It can be run up to the roof by a rope and pulley so as to give the desired pressure. Ten feet of rubber tubing is attached to the jar, a glass (or hard-rubber) stopcock at the lower end of the tubing (or a clamp), and another short length of tubing connecting this with a glass T-tube. The last should be of the shape and size shown in the figure that it may fit into a short slit in the common carotid artery.



In making this tube it is important that the two bulbs shall be as short as possible, the distance *a b* not exceeding an inch. It is evident that such a tube can be slipped into the artery through a slit the length of *a b*, and then the vessel pulled up on both ends and tied. Thus the preservative is forced with equal pressure up and down the vessel. The selection of the artery is a matter of some importance, and after having tried the common femoral and the first part of the aorta, I find the right common carotid the best vessel where only two men are to be put to dissect the head and neck. The lower carotid triangle of that side is spoiled, but the other side is available. The artery is easily found by the dissecting-room assistant after he has been shown it once; it gives a much better chance of injecting the whole body uniformly than any other vessel, and the internal jugular vein is reached by the same incision—a matter of some importance, as I shall presently show.*

In addition to the above apparatus, corks to fit the vertical end of the T-tube are necessary; and it is well to have a piece of straight glass tubing at hand of the widest possible bore that will pass freely into the internal jugular vein and long enough to pass down that vessel into the right auricle. The jar is filled with the following preservative:

Corrosive sublimate.....	3 viij;
Chloride of zinc.....	3 xxviij;
Strong hydrochloric acid.....	3 ij;
Water.....	3 ccelx.

I will discuss the preservative later on, but shall at present go on with the process of preparation.

Reflect the skin over the lower end of the right sternomastoid by a V-shaped incision, throw up the sternomastoid, and expose the common carotid and internal jugular. Make an incision in the carotid just large enough to admit the T-tube; tie it in; pass two ligatures under the internal jugular vein, but do not tie them; lay the body down on the floor and open the vein freely. Now, by raising the legs and trunk, empty the veins of all the blood that will run out of the jugular, if necessary passing a tube down into the heart to dislodge blood clot. Run the air out of your rub-

* Where it is necessary that the whole head and neck on both sides be available, the common femoral artery is the best vessel to inject by; but you do not get from it such uniform pressure all over the body. The use of the aorta by separating vertically the two halves of the sternum gives a very clumsy result, and has never commended itself to me.

ber tubing and connect with your T-tube. As the injection reaches the capillaries it will immediately turn the tissues to a pale gray, and this, with the swelling of the parts, will be the test of the thoroughness of your injection. Much more blood will at once be forced out by the jugular vein; let this run, occasionally increasing the intravenous pressure by putting your finger on the vein till the fluid runs clear and free from blood; then tie both ends of the vein and go on with the injection. It is better to have from eight to ten feet of pressure. If the feet do not bleach readily, raise the whole trunk so as to get as much pressure as possible on the extremities. The injection finished, remove the rubber tubing and put a well-fitting cork in the T-tube. The body may now be put into the tank for three days. On the fourth day inject the arteries with the colored injection, remove the T-tube, tying the vessel, and shave the body, if that has not been done at first. Now, if the body is to be dissected at once it may be taken to the dissecting room the day following the colored injection; but if it is to be kept for some time the brain should be removed and placed in wood alcohol, the calvarium replaced, the scalp stitched up, and the body consigned to the tank.

The brain will usually keep well if the alcohol be once changed; but if it be not firm and well whitened on its removal from the skull it may be necessary to remove the pia mater to allow the spirit to penetrate it. Cotton should be put in the bottom of the jar to support it and into the great longitudinal fissure and between the cerebellum and cerebrum to allow the spirit to reach all its parts. They are afterward to be distributed to the senior students for dissection. For ordinary dissecting purposes, and especially after the body has been injected as above described, alcohol is the best hardening agent for the brain. Brains from fresh, unprepared bodies should be injected twice (at interval of three days) with Müller's fluid, but not left longer than two weeks in it, lest they get too brittle. The hardening should be finished in alcohol.

Preserving Tank.—The nature of the tank will depend on the climate, the demand for and supply of bodies, and the number of bodies that must be kept in stock and the length of time they have to be kept. In any case the tank should be made of two-inch planks bolted together and calked so as to be watertight. It should on no account be zinc- or lead-lined, as even lead will be corroded by the fluids in use.

The length should be just six feet eight inches inside, and the depth not over three feet, that there may be no difficulty in lifting the subjects out. It should be raised a few inches off the ground, and the lid, hinged at the side next the wall, should be connected to the roof by a rope and pulley so weighted that one man can raise the lid, which should then remain open as long as desired. If the climate be cold it will be sufficient to paint the body with one-in-twenty glycerin and carbolic acid and wrap it up in a sheet and waterproof; or to wrap it in a sheet steeped in wood alcohol or in one-per-cent. corrosive sublimate, and waterproof, special attention being paid to the toes and armpits. The tank need only have an inch or two of sublimate or

creolin solution in the bottom to keep the atmosphere damp.* In such a climate as this, and where bodies must be collected all summer to supply the winter's demand, nothing short of immersion will suffice.

My pickling tank is filled with water containing three ounces of corrosive sublimate, four ounces of alum, and ninety ounces of common salt to each cubic foot of water. This solution serves for one year, being changed at the end of the winter session. It need not be thrown away, but can be filtered through a large piece of flannel and a little more salt added. The alum helps to prevent the horny layer of the epidermis from separating. The bodies must be weighted with bricks or otherwise kept completely under cover.

Ere we pass to the care of the bodies in the dissecting room let me give a few recipes.

1. *Preserving fluid for injecting into the arteries:*

Corrosive sublimate.....	3 viij;
Chloride of zinc.....	3 xxviij;
Strong hydrochloric acid.....	3 ij;
Water.....	3 cccix.

For one whole body.

A large porcelain mortar and pestle are used for dissolving this and for mixing the paint injection. Grind the corrosive sublimate to fine powder and dissolve with the aid of sufficient water and some of the acid; then dissolve the chloride of zinc with the rest of the water and acid, and mix both fluids together. The excess of acid is necessary to dissolve any carbonate of zinc that may have formed. Dry chloride of zinc is difficult to keep. It is good to weigh it out immediately on receiving it from the chemists into portions of twenty-eight ounces each; add water and some acid and keep it in solution till required.

I have not had good results with arsenical fluids. The bodies have not kept so well with me, and I consider the hardening effect of the zinc and mercurial salts on the brain, liver and spleen, etc., of the utmost importance.

2. *Coloring mass for arteries:*

Turpentine varnish.....	3 xx;
Turpentine.....	3 v;
Boiled linseed oil.....	3 ijss.
White lead (either in powder or wrought up with oil as got in the paint stores). lbs. ij;	
Red lead.....	lb. ss.;
Lead acetate (sugar of lead).....	3 jss.

Grind together in the mortar the lead acetate and red lead; mix this thoroughly with the white lead and then with the linseed oil and turpentine, adding each slowly and mixing vigorously. Having got this into a uniform paste, and having the syringe, nozzle, etc., all ready for injecting, add the turpentine varnish, mixing thoroughly and quickly; strain through a fine wire strainer, and inject at once. It sets very rapidly after the varnish is added. This usually makes an excellent injecting mass, and, though it makes a bad mess if a vessel ruptures during injection and does not always set well in the largest vessels, it is one

* Each body should lie on a light open wooden frame, and there may be two layers of bodies.

of the best fluids for coarse injection I know of.* The mortar must be wiped out with sawdust, and it and the syringe cleaned thoroughly with turpentine immediately after use. Of course this (like all other coloring masses) is thrown in with a brass syringe, considerable but steady and gradual pressure being used. The syringe is rather important. The old type of large anatomical syringe is a most clumsy instrument, recalling the age of the blunderbuss among firearms. My own syringe is extremely convenient and gives perfect satisfaction. Its barrel is eight inches long, two inches in diameter inside, as light as is consistent with strength, and holds fourteen ounces. The packing of the piston consists of tow, which is not so easily put out of order as a leather packing, and is easily renewed. There is a stopcock on the syringe, besides the movable one, which last should be ground to fit movable nozzles of various sizes (to suit radial, brachial, and carotid arteries, and one for the aorta), and should have a groove on it to tie a rubber tubing on if necessary. The graded nozzles should fit either on the syringe or on the movable stopcock. Where glass nozzles, as the T-tube, are used (I use nothing but glass nozzles, they are so easily made and do not corrode), they are to be connected to the stopcock by a short length of stout, unyielding rubber tube.

I should say that I owe the foregoing recipe for a coloring mass to the kindness of my respected teacher, Dr. J. Macdonald Brown, of Surgeons' Hall, Edinburgh.

The old-fashioned plaster-of-Paris injection is still in use in some places. It is easily used and is clean; but the vessels so injected are rigid and apt to break. The secret of success is to use it thin and use it quickly. No coloring agent containing an aniline dye must be employed. They diffuse and stain the tissues all round. Red lead and vermilion (the latter only for very special purposes) are the only eligible reds.

In the winter months, in more northern latitudes, the following gelatin mass might be used. I employed it in Edinburgh for some time with great satisfaction, it is so clean and easily used, and demonstrates the vessels, from the largest to the smallest, so clearly. It does not set well, however, in latitude 33° N. (or thereabout):

Chromate of lead and gelatin mass (from Lee's *Microtome's Vade Mecum*).

Take one volume of a solution of gelatin containing one part of gelatin to four of water.

One volume of cold saturated solution of bichromate of potassium.

One volume of cold saturated solution of neutral plumbic acetate.

Filter the warm gelatin solution through flannel (a wire strainer will do), and mix in bichromate solution. Then warm *almost* to boiling point, and add gradually the warmed sugar-of-lead solution. Inject as hot as the hand can bear. One body will take from forty to sixty ounces of this mass,

* There are two kinds of "turpentine varnish" available—viz., "hard oil finish" and copal varnish; of these, "hard oil finish" gives the best result. It is well, the first time this mass is tried, to make up a small quantity in the mortar and watch how it "sets"; it ought to acquire a doughy consistence, even under water.

thus requiring five ounces of gelatin. Prepare twenty ounces of each of the above solutions and mix as directed. The arteries, of course, are turned yellow, but it shows out very clearly.

To Prepare Waterproof Sheetting.—Finding the ordinary oiled cloth which I could purchase exceedingly liable to tear, I had a talk with a sailor one time when I crossed the Atlantic about how he prepared his oiled coat, and have my own sheets prepared now by the janitor. Wring the sheets out of strong brine (five pounds of common salt to a gallon of water). Dry as thoroughly as possible. Then immerse them in boiled linseed oil, and wring out the excess. Hang them up to dry in a good airy place, and keep them hanging up when not in use in some convenient place (the roof of the preparing room). Do not pile them up together or they may heat and even char. Each body is provided in the dissecting room with such a waterproof sheet, eight feet long by six feet broad, and each student must have his part wrapped in a suitable piece of calico similarly prepared. The sheets and small wrappers do several seasons.

Fluid for Preserving Tank.—Fill the tank with water to the desired depth; measure and calculate the number of cubic feet of water your tank contains, and to every cubic foot of water add three ounces of corrosive sublimate, four ounces of alum, and ninety ounces of common salt, the first and second in fine powder. Toward the middle of the session it may be necessary to add, say, a tenth of the whole quantity of corrosive sublimate.

One cubic foot of water is rather over six imperial gallons.

A jar of the same fluid, without the alum, should be kept in the dissecting room for students to dip the cloths in with which their parts are protected.

Original Communications.

THE TECHNIQUE AND INDICATIONS OF VAGINO-FIXATION

(MACKENRODT'S OPERATION).

BY HIRAM N. VINEBERG, M. D.,

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IN THE NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL;
ATTENDING GYNÆCOLOGIST TO MOUNT SINAI HOSPITAL DISPENSARY AND
TO THE MONTEFIORE HOME FOR CHRONIC INVALIDS.

THE number of inquiries elicited by a description of a knife and sound * used in vagino-fixation regarding the technique and indications of the operation has induced the writer to offer the present article to the profession. A further inducement he finds in the circumstance that no full description of the operation has been published in this country, excepting one by the author in a special journal,† which, of course, is at the command of a limited number. In order to more readily comprehend the steps of the operation, it is well to bear in mind the anatomy of the parts

* *New York Medical Journal*, April 7, 1894.

† *New York Journal of Gynecology and Obstetrics*, January, 1894.

and what it is intended to accomplish. The intention of the operation is to stitch the fundus of the uterus, or the

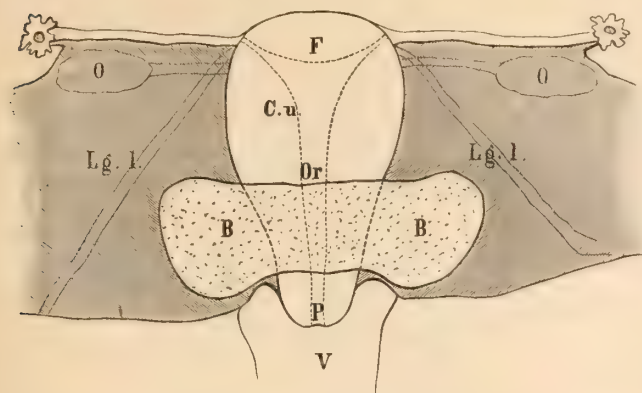


FIG. 1.—Outline of the normal attachments of the bladder (Mackenrodt). O, ovary; Lg. l, lig. latum; F, fundus; C. u., corpus uteri; Or, os internum; P, portio vaginalis; B, attachment of bladder; V, vagina.

body as near the fundus as possible, to the anterior vaginal wall at a point from one to two centimetres below the urethral opening.

A glance at Fig. 1 * will show that, in order to do this, the bladder, which is represented almost empty, must be pushed up out of the way. Fig. 2 shows the disposition of the bladder after the operation is completed. This disposition of the bladder is accomplished by splitting the anterior vaginal wall with a longitudinal incision, dissecting the two flaps thus formed from the underlying bladder, then cutting the septum which holds the bladder to the cer-

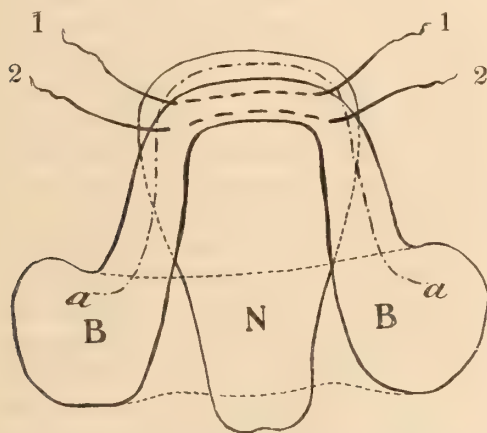


FIG. 2.—Outline of the bladder after vagino-fixation (modified after Mackenrodt to show the higher introduction of the writer's uterine sutures). 1, 2, uterine sutures; B N B, normal bladder attachment; a a, outline of bladder after vagino-fixation.

vix and pushing up the bladder with the palmar surface of the index finger, as is done in vaginal hysterectomy. The remainder of the operation consists in anteverting the

uterus and suturing it to either vaginal flaps near the urethral opening. The vaginal wound is then brought together by a continuous catgut suture, and the operation is completed.

Now, to describe the technique in detail. The patient is prepared as she would be for a vaginal hysterectomy. For a few days prior to the operation she is given twice daily an antiseptic douche (bichloride, 1 to 5,000). The vulva is shaved and thoroughly scrubbed with green soap and warm water the night before and after etherization. The patient is placed in the lithotomy position, with thighs flexed upon the abdomen. Any form of a crutch or leg supporter can be used. In the absence of these, a sheet twisted diagonally, passing over one shoulder and beneath the other, or behind the lower part of the back, the ends being tied around the thighs, answers very well. The vagina is now scrubbed with a brush and green soap and warm water. Care must be taken not to use too much force, so as not to cause abrasion of the mucous membrane. The vulva is again thoroughly scrubbed, and both it and the vagina irrigated by an antiseptic solution (bichloride, 1 to 5,000, or preferably lysol, one per cent.).

Before proceeding to the operation proper, I invariably

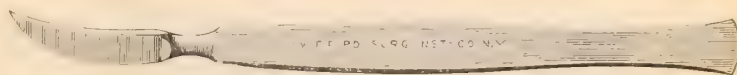


FIG. 3.—Author's knife.

curette the uterus and wash it out with sterilized warm water, for, even if no endometritis be present, which is not often the case, it is well to have a clean aseptic cavity in the event of the needle, in suturing the uterus, going through the whole thickness of the uterine wall. If there be present a pathological laceration of the cervix, this is repaired, or an amputation of the cervix done if the condition seems to demand it. The cervix is then grasped by two volsellæ and drawn downward and outward as far as possible without doing violence. The anterior vaginal wall is caught by another volsella, at a point from one to two centimetres below the urethral opening, and drawn upward. In this way the vaginal wall is put on the stretch. At this stage it is well to pass a sound into the bladder to ascertain the extent to which the bladder is attached to the cervix, and to estimate the thickness of the vaginal wall. With a sharp convex-bladed knife (Fig. 3) a longitudinal incision is made in the median line through the anterior vaginal wall, extending from one to two centimetres below the urethral opening to the vaginal attachment of the cervix. The two flaps thus made are separated from the underlying bladder by partly sharp and partly blunt dissections. In virgins and nulliparæ the attachment of the vaginal wall to the bladder is very firm, and this part of the operation may be attended with some difficulty and quite free hæmorrhage, which can, however, be readily arrested. In dissecting the flaps their width is made to depend upon the degree of the prolapsus or relaxation of the anterior vaginal wall. The rationale of this will be seen later. The flaps are made wider near the cervix, and gradually taper toward the upper angle of the incision near the urethral opening. The

* Mackenrodt holds that the lateral attachments of the bladder to the anterior surface of the broad ligament, as depicted in the figure, and which he says is a correct representation of the results of several examinations on the cadaver and living, has not been hitherto described. In performing vagino-fixation it is well to bear in mind the outline of the lower border of the bladder attachment, which dips down on either side on the broad ligament.

dissection is thus carried out in the form of a triangle, with the base near the cervix and the apex near the urethral opening.

The two flaps are now held apart by tenacula at the lower angle of the wound and a transverse, slightly curved incision with the convexity toward the cervix is made down upon the cervical tissue. This incision is made in the already denuded surface and cuts through the septum binding the bladder to the cervix. It is a wise precaution before making the transverse incision to again ascertain the lower border of the bladder by passing a sound into it, so as to avoid cutting into this important structure. The bladder is now gently pushed up from the cervix and wall of the uterus with the palmar surface of the index finger, as is done in vaginal hysterectomy. In some cases, to facilitate this step, it may be necessary to nip with scissors the attachment of the bladder to the broad ligaments at either side. As in the preceding step the ease or difficulty of execution of this part of the operation will in a great measure depend upon whether the patient is a nullipara or multipara. It is essential to make a good free separation

tion to this point. We now have the bladder in the upper angle of the wound, behind the pubes, where it can be retained by a vaginal depressor if necessary, a free cavity known as the vesico-uterine space and the denuded cervix (*vide* Fig. 4).

In the majority of cases of retroversio-flexions there is a prolapsus of the anterior vaginal wall. Even when there is no prolapsus, there is usually relaxation to a lesser or greater degree. Consequently, in nearly all cases an an-



FIG. 5—Author's sound.

terior colporrhaphy is indicated. In vagino-fixation this serves two purposes:

(1) To restore the width of the canal to its original dimensions.

(2) To form a better fixed point for the fixation of the uterus.

The colporrhaphy is now easily carried out by resecting a corresponding strip of tissue from either vaginal flap.

The next step of the operation consists in anteverting the uterus with a properly constructed sound (Fig. 5) so that its body presents in the vaginal wound. It is of importance to have the right kind of a sound. I have known operators use a large steel prostatic sound, and they have either failed to antevert the uterus or have forced the point of the instrument through the uterine wall, and were compelled to do a cœliotomy. In some cases the uterus is readily anteverted, in others again considerable difficulty is experienced, owing to the small arc through which the sound can pass on account of a high and rigid perinæum. Hence the value of the curve at the lower end of the sound. In virgins and nulliparæ it might be necessary to incise the perinæum so as to gain more room, but I have never had to resort to this, although I have done the operation in a virgin with a very small vagina and in several nulliparæ with narrow introitus and rigid perineæ. In a few of these cases I have had to resort to passing a few provisional sutures through the uterine wall just above the internal os, and by traction on these forward and downward have aided in anteverting the uterus. Having got the uterus well forward and presenting in the vaginal incision we next proceed to suture it to the vaginal wall. With a moderately stout curved needle a silk suture is passed through the left vaginal flap at the extreme upper end of the incision—that is, from one to two centimetres below the urethral opening and about half a centimetre from the edge of the flap. The suture is then carried through the anterior wall of the uterus, as near the fundus as it is possible, and out through the right flap at a corresponding point to that of the opposite side. A second suture is passed in the same way about a centimetre below the first. The sutures are now tied and the vaginal wound is closed by a continuous catgut suture, the last one or



FIG. 4.—1, the bladder pushed up; 2, vesico-uterine space; 3, denuded cervix. (Winter.)

of the bladder from the uterus and not to worry whether the peritoneal duplications (the vesico-uterine fold) passing over the base of the bladder to the anterior surface of the uterus be torn through or not. I never pay any atten-

two stitches being made to catch up the cervical tissue to avoid any pocketing. A couple of interrupted sutures may be passed to strengthen the line of coaptation, particularly if any tension exists (Fig. 6). Should there be a

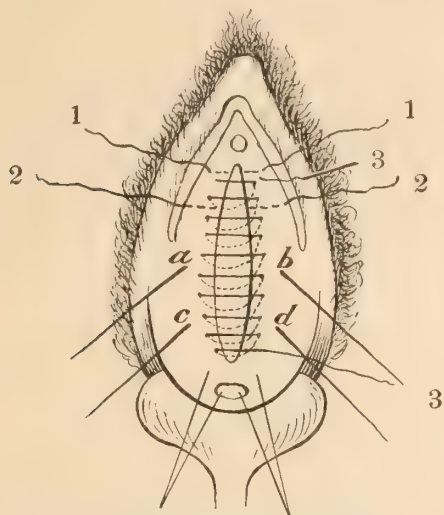


FIG. 6.—(Modified after Dührssen). 1, 2, uterine sutures; 3, continuous catgut suture; a b, c d, tension sutures.

prolapsus of the posterior vaginal wall or a laceration of the perinæum, this is now attended to. The vagina is packed lightly with iodoform gauze and the patient put to bed. She is kept in bed for three weeks, the uterine sutures being removed at the end of the fifth or sixth week.

For the first few days the patient has to be catheterized. The duration of time during which catheterization has to be employed has varied in my cases from a few hours to five or six days. In the majority of cases the patients have been able to void urine after the first movement of the bowels, from twenty-four to thirty-six hours after the operation. The operation is a perfectly safe one. Its mortality thus far is *nil*. This statement is based on two hundred and twenty-four recorded cases, including the writer's seventeen cases (fourteen of his own and three in which he assisted).

Most of my patients were operated on in the poorer class of tenements, and amid dirty and squalid surroundings. The temperature, with only one exception, never went above 100°, and the convalescence in all was uneventful. In some of these cases an amputation of the cervix, an anterior colporrhaphy, and a perineorrhaphy were done at one sitting. Even when the results of the operation were not satisfactory, no untoward after effects have been observed. The operation was not always successful when adhesions were present. But of this later on.

The theoretical objection raised in some quarters against the operation of vesical disturbance is completely set aside by experience. In none of my cases have any bladder symptoms followed. The temporary retention immediately following the operation could not be considered such by even the most carping critic. On the contrary, in the majority of my cases there had been frequent and painful micturition, which disappeared after the operation. This experience tallies with that gained by others.

The indications for the operation coincide closely with those of Alexander's operation or shortening of the round ligaments. What these are for the latter have recently been defined by two of the most skillful operators and two of its ablest and warmest advocates.

Mundé* says: "Only a sharply retroverted or retroflexed uterus, with more or less descensus, with more or less relaxed vaginal walls, with perfect mobility of the uterus and annexa, justifies Alexander's operation." In a discussion at the last meeting of the American Gynecological Society Edebohls demanded the existence of the following conditions for the success of the operation of shortening the round ligaments: "When the uterus can easily be put into normal position and will stay there, and the tubes and ovaries can be felt to be normal in size."† The indications for vagino-fixation, however, do not call for quite so closely drawn lines. The writer and others have obtained success with it when these conditions did not obtain. In some of my successful cases there was some thickening of one tube, and moderate enlargement of one or both ovaries. To be sure, the uterus must be perfectly mobile, or rendered so by a prior course of tamponing or pelvic massage. But I would put the same limitation on the term "perfectly mobile" that Edebohls does. The uterus must be easily anteverted, and must remain in anteversion until the woman begins to walk about.

It may be asked, if there is enlargement of an ovary or some thickening of a tube, why not perform cœliotomy and ventro-fixation? The answer will be that each case must be analyzed for itself, and that every thickened tube and enlarged ovary does not require a radical operation. Polk and others have taught us what a curettage with or without packing of the uterus can do for the cure of many cases of moderate salpingo-oophoritis. Is a cure, then, not more likely to ensue upon a curettage plus an operation that remedies a retroverted or retroflexed uterus? Of course, if one or other of the tubes and ovaries is diseased to the extent beyond the hope of cure by a curettage and reposition of the displaced uterus, then cœliotomy and ventro-fixation are indicated.

It may be further pertinently asked, given the aforesaid conditions—a "perfectly mobile uterus," with slight or no disease of the annexa—is operative interference at all necessary? In a great many instances it is not. But every active gynecologist and practitioner will meet in the course of a year a fairly large number of cases in which a pessary can not be worn, either on account of the discomfort or annoying discharge it produces or because the woman is unable or unwilling to go to a doctor weekly and have it removed and replaced. Again, there are some cases of mobile retroflexed uteri which can not be held in normal position by a pessary. I am aware there are some gynecologists who will take issue with this statement, and who will maintain that failure is due to lack of skill in applying and fitting the instrument. This may be true; and if it is, it puts a narrow limitation upon the number of specialists

* *Medical Record*, July 14, 1894.

† *N. Y. Journal of Gynecology and Obstetrics*, June, 1894, p. 843.

who have the necessary skill. Further, in a number of cases, some condition or conditions other than the malposition exist requiring surgical interference, such as an obstinate endometritis, a laceration of the cervix or perinæum, or a cystocele and proctocele. Having to anæsthetize the patient any way, she may as well be submitted to the twenty or twenty-five minutes' further operative interference in order to do away with the need of wearing a pessary for months or years, or for the remainder of life.

It has already been stated that the indications for vagino-fixation and Alexander's operation are similar, the wider boundaries being in favor of vagino-fixation. This operation may then be considered in the light of a friendly rival to shortening of the round ligaments. Further experience will teach us which cases are more suitable for the one or other operation. I do not belong to the class of men who decry Alexander's operation.

When such able and conscientious observers as Mundé, Edebohls, and Cleveland allege good results with it, I am content that the operation has a field of usefulness. But it is conceded by its advocates that it is a difficult operation to perform, that the round ligaments are sometimes difficult to find, that they are at times very thin, and that they may be so destroyed by fatty degenerations as to break in pulling the uterus forward.

Vagino-fixation fixes the uterus in a position corresponding more closely to the normal than do either shortening of the round ligaments or ventro-fixation.

Clinically, what is the normal position of the uterus? No better authority on this subject can be quoted than Professor B. S. Schultze, of Jena, whose labors in this field have established our present views regarding the normal and abnormal positions of the uterus. He says: * "Chiari, Braun, and Späth say in their *Klinik der Geburtshülfe und Gynäkologie*, 1855, p. 375: 'The position of the virgin uterus is such that the body is joined to the cervix at an obtuse angle, opening downward and forward so that on an internal examination one can feel a large part of the anterior surface of the uterus through the anterior vaginal *cul-de-sac*.' As I commenced the systematic study of gynecology in the autumn of 1854, this view was of the greatest value to me personally; it dominated over my first examinations, and recognizing its *accuracy* [Italics are mine], I was in a great measure prevented from acquiring false ideas on the position of the uterus."

The truth of this view I have been able to corroborate time and again in my examinations at the Mount Sinai Dispensary. During the past year the new cases in my service numbered 1,872, all of which were personally examined by me. Fully ten per cent. of these had perfectly healthy pelvic organs and their complaints were due to some gastric or intestinal disturbance or to early gestation. In these cases, when the conditions were favorable—viz., an empty rectum and bladder and not too rigid abdominal walls—the anterior surface of the uterus for almost its whole length could be felt lying against the anterior vaginal wall.

Further, when a mobile retroverted uterus is replaced, it falls into this position just as a dislocated joint falls into normal relations when reduced. Further still, during the first few weeks of gestation in a healthy and normally placed uterus, the antero-posterior enlargement of the uterus will give rise to a distinct bulging in the anterior vaginal fornix. Now, the position of the uterus, after a properly performed vagino-fixation, conforms closely to that just described as normal: "a large part of the anterior surface of the uterus" can be felt on internal examination through the anterior vaginal *cul-de-sac* (Fig. 7).



FIG. 7.—Profile view of uterus. The shaded area near the fundus, *a*, represents the union with the vaginal wall. (Modified after Dührssen.)

The results were good—that is, the uterus remained in anteversion and the patient was freed from her former symptoms—in all the cases (nine in number) in which the aforesaid conditions obtained. In other words, in suitable cases the cures were one hundred per cent. In one case of complete procidentia I was unable to complete the operation, owing to extensive adhesions between the uterus and bladder. In the remaining seven cases, in which adhesions to a greater or lesser extent existed, a symptomatic cure was obtained in some. In others the failure was complete, the uterus returning to its faulty position and the former symptoms recurring shortly after the patient left her bed. These, however, as well as the successful cases, will be discussed more in detail on another occasion. The first case (a successful one) was operated on October 4, 1893, nearly a year ago. The last case was done four months ago. One of the patients operated on November 6, 1893, was shown at the New York Obstetrical Society on April 17, 1894. Dr. E. H. Grandin (appointed by the chair to examine the patient) reported that he found the uterus in good position in the pelvis, fixed anteriorly to the cicatrix in the anterior fornix. The woman had told him

* *The Pathology and Treatment of Displacements of the Uterus*. New York, D. Appleton & Co., 1878, p. 48.

that she now had no pain, although previously she had had some symptoms referable to the uterus, such as backache and dragging pain; in other words, the operation seemed to have a field of utility contrary to his previously formed opinion. He would like to see the case after a longer period had elapsed, because he thought it very problematical that the operation would give permanent results. (*Transactions of the New York Obstetrical Society*; the *New York Journal of Gynecology and Obstetrics*, June, 1894).

The patient has been under my observation ever since. The uterus is in the same position as above described and she is free from all symptoms. There can be little doubt as to the permanency of the results. When the uterus retains its forward position for over nine months, in all likelihood it will remain so for ever. It has been the experience of the writer and others that when relapses occur they usually take place either shortly after the patient is up and begins to go about or during the first few months.

Pregnancy has taken place in several cases in which vagino-fixation had been done. Gestation progressed normally and the uterus was found in anteversion several months after labor at full term (Dührssen, Mackenrodt). As far as I am aware conception has taken place only in one of the cases operated upon by me. The gestation in this instance is thus far of only a few weeks' duration, but the woman is anxious to procure an abortion, in which evil intent she will no doubt succeed.

The following conclusions seem warranted:

1. Vagino-fixation is a safe operation.
2. It is not particularly difficult to perform.
3. The only special instrument required is a uterine sound of the proper shape and size.
4. The operation is indicated in mobile retroversions or retroflexions of the uterus that are attended with symptoms and which for one reason or another are unsuited for treatment by pessaries or tampons.
5. It is not attended with any untoward sequelæ.
6. It fixes the uterus in a position closely resembling that of the normal.
7. The results of the operation interfere in no way with the occurrence or course of gestation.

NOTE.—Since writing the foregoing I have performed the operation in three further cases with complete results thus far. In the last case, operated on four weeks ago, I modified the method of suturing the uterus with the object of shortening the period of the recumbent posture from three weeks to ten or fourteen days. It is too early as yet to speak of definite results. Should the method prove as successful as it promises, the gain will be not only a shorter stay in bed, but an important extension of the indications of the operation.

127 EAST SIXTY-FIRST STREET.

Doctors' Servants—that is, the so-called "valets de pied" of the principal medical men—in Naples are remunerated in a manner quite unique to the locality. They accompany their masters to the patients' houses, and at each visit they are given two francs. Other than this, these particular servants receive no money, which appears to be their time-honored wages. There is no paucity of applicants for the post of a doctor's servant, we learn, in Naples, so the arrangement appears to be a satisfactory one from their point of view.—*Hospital*.

TYPHLEENTERITIS VERSUS APPENDICITIS.*

By JOHN W. S. GOULEY, M. D.,

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THE frequency and grave consequences of inflammatory action in the region of the human blind intestine; the well-known high percentage of mortality, up to a score of years ago, from secondary peritonitis and septicæmia due to perforation of the intestine; and the modern surgical procedures employed for the relief of sufferers from this ailment, have attracted general attention to questions relating to its nature, diagnosis, and treatment. It is not uncommon for laymen to ask, "What is this disease now called appendicitis?" The answer, that it is an "inflammation of a part of the bowels," does not always satisfy the inquirer. If he happens to be a scholar, he is naturally disappointed with such a meager answer to his categorical question, and can not accept the amphigorical term "appendicitis," which conveys to his mind the idea of inflammation of any appendage in or out of the human body. When asked what may be his diagnosis in a case of the kind now under discussion, if, instead of replying, in a discordant medley of Latin and Greek, "appendicitis," the physician were to say, in plain English, "blind-gut inflammation," he would be clearly understood by the learned and by the unlearned. Even the most ignorant rustic knows something of the blind gut in animals, and is ready to believe that it exists in man. The probable reasons why this part of the intestinal canal is improperly named *appendix cæci vermiformis*, and its inflammation "appendicitis," will appear in the following notes.

The word "appendicitis," coined a few years ago, to express the idea of inflammation of the blind intestine, surely fails to convey the intended idea. This inaccurate and hybrid term has evidently arisen from a faulty designation of the first portion of the large intestine. Vesalius is made responsible for the introduction of the term *appendix cæci vermiformis*; but his language has seemingly been misinterpreted, as may be inferred from his words quoted by Hyrtl, who shows that this great anatomist regarded the part now named vermiform appendage as the true *intestinum cæcum*, and that he called *caput coli* the part now known as the *intestinum cæcum*.

The three following paragraphs, abstracted from Professor Hyrtl's *Onomatologia anatomica*, published in the year 1880, are intended as vouchers for what has just been said of the *caput coli* and of the true *intestinum cæcum*:

"The beginning of the large intestine was called by the Greeks *τυφλὸν έντερον*. If Galen and Oribasius had ever dissected human bodies, they would not have called the first portion of the large intestine *τὸ τυφλὸν έντερον*, '*intestinum cæcum*,' blind intestine, for, in man, this is so diminutive that it can not be regarded as a separate portion of the intestine. It is only in the case of herbivorous mammals that the *intestinum cæcum* attains such a size and length as to have led Galen to compare it to the stomach

* Read before the New York State Medical Association, October 9, 1894.

and to call it *δευτέρα γαστήρ*, *alter ventriculus*. He was so surprised by the size of the *tuphlon enteron* in animals used by him for anatomical study that he was soon ready with a theory—namely, that the already digested food was retained therein until it had accumulated to a quantity sufficient to be expelled at one time.”

“Vesalius thought that if any portion of the human intestine was to be called *cæcum* it could only be that slender part appended, as it were, to the head of the colon and similar in appearance to a worm.”

“Salomon Albertus afterward described the part of the large intestine called *cæcum* as an appendicle like a twisted worm.”

It does not appear in these quotations that the two anatomists gave the name *appendix cæci vermiformis* to the true blind intestine.

Rufus of Ephesus, the celebrated Greek physician and anatomist, so frequently quoted by Galen, seems to have given much attention to anatomical nomenclature, and is said to have named *tuphlon enteron*, *intestinum cæcum*, that part now called *appendix cæci vermiformis*. His description of the human body is based upon the dissection of apes.

In man this organ is now described as varying “from half an inch to six inches in length, with an average diameter of that of a goose quill.” A few years ago Dr. Hermann M. Biggs removed from an adult male subject a blind intestine nine inches and a half long. This is probably the longest ever found in a human being. Among some of the viscera of an adult chimpanzee, kindly sent by Dr. E. T. T. Marsh a few weeks ago, was its blind gut, which measured fourteen inches in length and three eighths of an inch in diameter, gradually increasing to six eighths of an inch at its root. The animal was five feet three inches tall, and weighed one hundred and forty-five pounds.

The portion of the colon generally known as the *intestinum cæcum* is far from being blind, for it has three apertures: the first, leading into the so-called vermiform appendage; the second, with two lids, the ileo-cæcal valve—which should be called the ileo-colic valve—leading into the ileum; and the third, leading into the ascending colon. The use of the term *caput coli* was traced by Hyrtl to the masters of the Salernum school. The Arabs, says this author, thought it improper to apply the term “blind” to a piece of intestine which has one opening; consequently, they called it *al-a'war*, meaning the one-eyed, which by the translators was rendered into the mongrel Græco-Latin word *monoculum*. This hybrid term *monoculum* remained in use throughout the period of the revival of anatomy in all writings. In French it would be *intestin borgne*, which, literally translated into English, would be intestine blind of one eye. There being in this language no single word equivalent to *borgne*, it would seem well for writers of English to employ the modified Greek term *typhlenteron* for technical description, and its equivalent—blind intestine—for popular use, without regard to the number of possible eyes.

Hyrtl, in his extended study of the philology of anatomical terms, adopts the views of Vesalius and of some of

the other anatomists of the Vesalian epoch, that the blind intestine—now called *appendix cæci vermiformis*—is nothing else than the first portion of the colon; largest in the herbivorous mammalia, slender and long in certain anthropoid apes, rudimentary in man.

It seems highly proper, if only for the sake of approaching exactness, that the name *caput coli*, head of the colon, be retained until a better term is suggested, and, for this and other good reasons, that *typhlenteron*, *intestinum cæcum*, blind intestine, be substituted for *appendix cæci vermiformis*.

It is probably from a misinterpretation of the similes employed by Vesalius and Albertus in their descriptions of the blind intestine that the term *appendix cæci vermiformis* originated. But there is no warrant whatsoever for the coinage of such a word as “appendicitis.”

For many years past endeavors have been made by different writers to introduce briefer terms to take the place of “inflammation of the colon’s head and vermiform appendage.” *Cæcitis* was used in 1867 by Peebles, of Dublin, and *typhlitis* was used by hundreds of writers—English, American, German, French, Spanish, and Italian—who, doubtless, knew perfectly well that these two terms signified inflammation of the *blind*, and never meant anything else. The elision of the equivalent of the word intestine in the word *typhlitis*, either for the sake of brevity or on any other account, does not seem justifiable.

To those who may think it proper to adhere to the term *typhlitis* on the ground that the neuter adjective *tuphlon* can be used as a noun, the answer is that *enteron* is also an adjective, but has long been used as a noun to signify gut. In the sense in which these words appear together, they can not both be nouns any more than they can both be adjectives; one must be used as a noun and one as an adjective. In English there is no difficulty in the way of their being rightly used, for blind, the adjective, qualifies gut, which, meaning bowel, was always a substantive. But in Greek there is no way out of the difficulty, except to use the adjective *tuphlon* to qualify the artificial substantive *enteron*. Whenever *tuphlon* occurs singly, *enteron* is understood to have been elided for brevity’s sake, so that *tuphlon* still remains an adjective.

A few modern writers, to whom was distasteful this flaw in “*typhlitis*” as applied to inflammation of the head of the colon and of the true blind intestine, preferred to employ—for a clearer expression of the idea of inflammation of one or both of these portions of the large intestine—the compound substantive *tuphlo-enteritis*. This term was used in 1852 by an American writer, Townsend; in 1855 by Ward, of London; in 1861 by Storer, of Boston; in 1865 by F. Mott, of Boston; in 1867 by Homans, of Boston; and in 1877 by Fitz, of Boston; and *typhlo-enteritis* was used in 1860 by Owen Rees, of London, and in 1865 by Peacock. Gardner’s medical dictionary, 1847, contains the terms *typhlitis* and *typhlo-enteritis*, meaning inflammation of the “*cæcum*,” *caput coli*. Dunglison’s, Littré and Robin’s, and many other dictionaries apply the terms *typhlitis* and *typhlo-enteritis* to inflammation of the *caput coli*, while a few writers use either term to

designate inflammation of the *caput coli* and "*appendix cæci*."

The term typhlo-enteritis seems to be inadmissible, because it can be construed as blind inflammation of the intestine. The idea sought to be expressed is not that of the -itis of typhlon, but of typhlenteron—that is to say, blind-intestine inflammation. Hence it is that some writers expunged the hyphen and made the continuous word typhloenteritis, which, however, is open to several objections, among which are: (1) It contains too many syllables; (2) it is not euphonious; and (3) it is not in accord with the canons of word-building.

By a slight modification of the term typhloenteritis it seems as if the idea of inflammation of the true blind intestine might be briefly and clearly expressed. This modification may be effected by eliding the o of typhl[o]enteritis and uniting the two members needed to form the single word typhlenteritis, which contains precisely the same number of syllables as "*appendicitis*."

The contraction from typhlon enteron to typhlenteron, as denoting a concrete substance, is not strictly correct, because, as a general rule, an adjective should not be combined with the noun which it qualifies. Such a contraction is, however, regarded by high authorities in philology as allowable in technical terms for the sake of brevity and euphony, and seems to have been sanctioned by Aristotle and other Greek writers on science, in whose works similar contractions appear. This contraction being allowable, it follows that the contraction from typhloenteritis to typhlenteritis is also allowable. There is a great difference between such a contraction and the elision of a whole word, as in "*cæcitis*" and "*typhlitis*."

It is therefore hoped that the anatomists will agree to adhere to the old term *caput coli* instead of "*cæcum*," and call the "*appendix cæci vermiformis*" by the name typhlenteron, *intestinum cæcum*; that the nosologists will substitute typhlenteritis for "*appendicitis*"; and that the surgeons will adopt the term typhlenterectomy, excision of the blind intestine, instead of "excision of the vermiform appendage of the *cæcum*."

SIMPLICITY IN THE TREATMENT OF FRACTURES.*

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It is with hesitancy that I presume to occupy your time and attention by the discussion of a subject which may seem so commonplace in these days, when the surgeon's pen is expected to bring forth something decidedly startling or the report of some new and heretofore unheard-of disease or operation. I trust that you will be kindly indulgent with me for a few moments while I express my views upon the subject of simplicity in the treatment of fractures.

That there is need of attention to simplicity I am convinced by a casual perusal of any of the ordinary text-books on fractures which are placed before the student and practitioner, replete, even at this enlightened age, with descriptions of complicated appliances for the treatment of the various fractures to which our frames are subject.

These are the days when the surgeon desires glory and immortalization through the discovery of some new operation or of some new means whereby he may successfully and brilliantly do some of the older operations; to be the first or second to do some delicate operation, in which the wavering of a hair's breadth in the knife or the entrance of a single micro-organism to the seat of operation might overthrow his cherished plans and the victim be thereby sacrificed upon the altar of scientific investigation—an inch-and-a-half incision and a ten-minute operation.

Others are perhaps endeavoring to devise instruments of original design to do a certain operation which, perhaps, has been done a hundred times and as well with a common scalpel and a pair of scissors. How many of this kind can you enumerate that have been discarded as being too complicated to be practical; how many have been lost to sight and memory that bear the names of eminent men and teachers! Do not set me down, please, as a fanatic, or as one who in the least depreciates the efforts at advancement, for this is an age of progress, and those of us who desire to be anything must be up to the spirit of the times.

Labor-saving devices have revolutionized the mechanical world, but the surgical art is one where the human hand is and ever will be the active agent. Labor-saving devices in our line are not among the probabilities; we are like the artist who with pencil and brush can bring out on the canvas that which will win the admiration of the whole world. The true mechanic is the one who can accomplish the most and the best results, if required to do so, with the smallest number of tools; so is it with the surgeon.

The treatment of fractures is a subject to which often too little attention is devoted; it is a branch of surgery where the surgeon's results must ever remain as a monument or reproach to his skill, a living accusation of ignorance which almost amounts to crime. The grave seldom yawns to mercifully cover up his mistakes. Surgical shock does not often step in to cover up a crooked leg or an ankylosed elbow; rebellious micro-organisms are never responsible for a deformed hip. For whatever mistakes there are the surgeon himself is responsible. With that thought in mind, should we not devote more time to this subject, even though it does seem trivial and a reminder of our student days?

The surgeon who would successfully treat fractures should be a mechanic as well as a surgeon, and a man of excellent judgment: a mechanic that he may, if need be, make a splint with a jackknife and a shingle, and a man of good judgment that he may know just what is needed for each particular case, that he may do neither too little nor too much in the way of treatment; for I believe that some cases turn out badly from too much treatment, just as some do from not having enough. Of all surgical procedures the treatment of fractures, to my mind at least, de-

* Read before the Colorado State Medical Society, June 21, 1894.

mands simplicity of apparatus; the unfortunate individual who is your patient will bless you if you can treat him without much complicated paraphernalia. It seemed to be the fashion formerly for every surgeon to devise a splint with some little peculiarity that he might have his name handed down to posterity. How many of them are in use to-day? More than good judgment will sanction; and how many of them, I would ask, will accomplish the objects which are expected of them? A young surgeon who has never had much experience in handling these cases must, of course, be guided by the teachings of others and by his readings; and in his teachings too often he has been told that Sir B——'s or Dr. J——'s splint should always be used in the treatment of a Colles's fracture, and so on *ad infinitum*. Every surgical-instrument dealer will display to you his stock of patent splints, beautifully molded on a dummy, highly polished, perforated, grooved here and there to protect projecting bones from pressure, elevations here and there to press in between parallel bones—all of which to the novice looks plausible, and he says to himself: "I have found just the splint that I want for my case, and how fortunate I am!" As for myself, I abhor ready-made splints; they are like hand-me-down clothes; they seldom fit anybody except the dummy they were made on; very few of them are worth the cost of the material used in their construction. I well remember visiting an old surgeon's office when a boy and looking with eyes wide open, through glass doors, at his beautiful collection of splints, and I thought that he must surely be a very great surgeon; those same beautiful splints at a later day became mine and were forthwith consigned to the wood pile, with the exception of a few which I retained to show the members of my class that I might impress upon their minds their worthlessness.

It has been my lot to be called upon to treat almost every variety of fracture to which the human frame is subject, and with the armamentarium which you see before you I feel that I am fully prepared to handle any fracture that may come along, barring, of course, those which require operative treatment. This kit of tools is simplicity itself, very unlike the set which I saw in the old-time doctor's office. But to return to the kit, as I say, I have everything here which I desire, and I have purchased them at a cost of a trifle over four dollars. I feel, too, that I can handle my cases with less trouble, get better results, and give my patients better satisfaction than with the old-fashioned cumbersome or the new fashioned more elegant and complicated apparatus.

The important thing to bear in mind is that no two cases are exactly alike; that an apparatus eminently fitted for one case may not do at all for the next; therefore the surgeon should be a mechanic, and be able to construct his own apparatus for each particular case, and not necessarily treat all in a set way because Professor So-and-so did. What shoemaker would make all of our shoes over the same last? The surgeon should be a splint maker as well as a splint fitter.

We should always bear in mind the three cardinal points which govern the treatment of all fractures:

1. Make an accurate diagnosis, if you can do so without doing damage to the parts already injured.
2. Restore the fragments to their normal position.
3. Apply such an apparatus as will keep them there and immobilize them.

How much more satisfactory would be our results if we would always keep these three points before us! There are also three things which I would impress upon your minds by my remarks, and they are these:

1. That the treatment of fractures is not as difficult a proposition as it sometimes seems.
2. That you should not treat fractures by any set rule other than the rule which says that you must keep the fragments in their natural position and thoroughly immobilize them.
3. That simplicity in apparatus will give you better results with the least amount of trouble.

1. Most surgeons upon their advent into the arena of actual practice are possessed with the erroneous idea that fractures are very difficult things to treat. I have seen surgeons make as much preparation for fixing up a simple fracture of the lower leg as some would do for their laparotomy. That sort of thing undoubtedly inspires the ignorant with awe and respect and enables the surgeon to charge large fees for his services, and might possibly serve as an advertisement for him, but such base methods should be beneath the dignity of him who relies upon his skill for his success. Confidence is what is needed, and that, of course, comes only with experience. In this enlightened age of ours the treatment even of compound fractures is not such a difficult thing with the proper understanding of aseptic methods, for we should be able to convert a large proportion of our compound fractures into simple fractures and treat them as such.

2. We should have no set rule for treating our fractures. We should make the rule fit the case and not the case the rule. I have seen surgeons work conscientiously for a considerable time to make a certain splint fit a case of Colles's fracture when the fact was that it was not the splint at all for that case; the surgeon did not fully understand the anatomy of the parts, but felt that he must make that case fit this particular splint. I have also seen a surgeon apply a roller plaster-of-Paris bandage to a fractured leg, take it off, and reapply it in his earnest endeavor to make it fit when it would not do so, and when another kind of dressing would have served the purpose perfectly; but he was not enough of a mechanic to see it. The surgeon should study each case of fracture, its nature, the direction of the line, and the direction of the displacement, before saying what kind of an apparatus should be put on. He should study to put on an apparatus which will be light and of sufficient strength (and right here let me say that the tendency is to put too heavy splints on fractures), and which should be as comfortable to the patient as possible. Splints which fit the parts accurately are the most comfortable, and therefore splints which can be molded to the parts are the most serviceable. Heavy wooden or metallic splints are not needed. When I use wooden splints I do not have them over an eighth of an inch thick, and metallic splints

I seldom use. To my way of thinking, splints which can be molded are the most serviceable, and I carry two materials which can serve that purpose—one, binder's board in strips, which, when soaked in water, become perfectly pliable, and can be molded to almost any surface; and the other is plaster of Paris, which, when made into a thick paste and incorporated into several layers of bleached butter cloth and folded into proper shape, makes a splint which can be made to fit any surface of the body, and when it becomes hard it will accurately support the parts and keep them perfectly immobilized. It is light, clean, and of good appearance. I have used this splint in almost every case of fracture of the leg below the knee and of the arm in the last three years, and I give it my unqualified approval. These splints can be made to fit any angle, as, for instance, at the elbow, and can be carried up over the shoulder in the form of a shoulder-cap in cases of fracture about that joint. They are to be held in place by means of an ordinary roller bandage, and in that way the seat of fracture can always be inspected without any difficulty.

3. I have already transgressed a little on this division of my subject—namely, that the simpler the apparatus is which will accomplish the results, the better will be the ultimate outcome of the case—when I spoke of the use of plaster-of-Paris splints. I have already said that the surgeon's paraphernalia for the treatment of fractures need not be expensive or extensive. You may now ask, What have you in your kit? Well, here is the list:

Two yards of bleached butter cloth; one dozen safety pins; two strips of wood four inches wide, a quarter of an inch thick, and thirty inches long; one roll of adhesive plaster three inches wide; two strips of binder's board; two yards of unbleached muslin; four ounces of dental composition; one foot of silver wire; one dozen plaster-of-Paris bandages; three pounds of dental plaster of Paris; four sheets of cotton wadding; half a dozen assorted bandages; one long patella splint; two empty sand bags; one pulley and cord—which, together with a pocket knife, will enable you to handle any case that may come along, excluding those which will require operative interference. You will notice that in this list there is no Dr. J——'s splint for Colles's fracture or Dr. S——'s splint for Pott's fracture; they are a superfluity, and would add nothing to your convenience or comfort. It is a mistake that our text-books are filled with descriptions of such a large number of complicated contrivances; the reader is at a loss to know which is the best, or may conclude that it is simply a matter of taste.

It is not my intention to detain you while I give you a detailed description of the methods of treatment of all of the fractures of the body, but I would like to mention a few to illustrate what I have been saying and to impress upon your minds the truth of my statements:

(a) Fracture of the clavicle—one of the common everyday cases: For the treatment of these cases what is more simple than a piece of unbleached muslin eight inches wide and eight feet long, and, when properly applied as a figure-of-eight bandage of the elbow, what can be more effective or more comfortable to the patient? I have treated ten

cases of this injury by this method, and have had better results than when treating them by other methods. You can probably all recall and are familiar with at least a dozen different methods of treatment for this particular injury, and in many of them it would seem that the sole object was to make them as complicated as possible. I well remember a case which came to me from another town with an apparatus on which probably cost the doctor at least fifteen dollars, and which consisted of a bellyband of leather with a pocket on one side into which fitted an upright steel rod, adjustable in length by means of a screw arrangement; at the upper end was a crutch which fitted into the axilla. The only thing which this apparatus could accomplish was to elevate the shoulder, and this could have been done just as effectively and much more easily by means of a piece of unbleached muslin costing only two cents, and which would have at the same time accomplished all of the other things desired—namely, to draw the shoulder backward and outward.

(b) Fracture of the phalanges: You will find in the market a number of patent splints for the treatment of this fracture. All that is necessary in these cases is to keep the fragments in line both in an antero-posterior position as well as in a lateral, and not to allow the finger to become rotated on its axis. A small, narrow piece of binder's board or a plaster-of-Paris splint is all that is needed, and sometimes even this is not necessary, for simply bandaging the injured finger to those on either side will serve the purpose. In other cases you can take the finger of an old glove, draw it over the injured finger, and stiffen it with glue or varnish painted on the outside.

(c) Colles's fracture: Here is a place where we have an infinite variety of splints. In looking over one of the modern text-books I find no less than twelve different splints pictured for the treatment of this fracture, many of them, too, bearing such distinguished names as Nélaton, Bond, Smith, Hewitt, Dupuytren, Levis, Hamilton, and Bolles, and it is my experience after treating a large number of these cases that none of them accomplish the objects desired better than two straight pieces of board properly padded, or two plaster-of-Paris splints, neither of which will cost over five cents.

(d) Suppose now that we have a fracture in or near the elbow joint and it is necessary to put the arm up in an angular position, why should the surgeon carry around with him a large supply of angular splints of assorted sizes when with a yard of butter cloth and a pound of plaster of Paris he can make an angular splint which will fit any case and which will perfectly immobilize the joint and be more comfortable than any of the ready-made splints? This method I have used in a number of cases of all ages with entire satisfaction to all concerned.

(e) Fracture of both bones of the lower leg is one which is very common and apt to be compound. These cases can be simply and very satisfactorily treated by means of the plaster-of-Paris splint; some surgeons recommend putting on a temporary dressing for a few days and then incasing the leg in a roller plaster-of-Paris bandage. If that is your method of treatment I

would certainly apply the temporary dressing first. It has been my habit to combine the temporary and permanent dressings in one, both in my treatment of simple and compound fractures of the leg, in the shape of a plaster-of-Paris splint long enough to reach from the knee down the leg, underneath the foot, and up on the opposite side of the leg to the knee again, which is to be held in place by means of an ordinary roller bandage. This can be applied to the leg at any time irrespective of the presence or absence of swelling, for as the swelling subsides the outside roller bandage can be slit up and a new one put on tighter than the first without disturbing either the splint or the fragments. It fits every irregularity of the surface; keeps the fragments perfectly immobilized; it does not allow of any motion in the ankle joint and will thereby prevent much ankylosis of that joint; the seat of fracture can be inspected at any time by simply slitting up a few turns of the roller bandage at that point; it is very light, sufficiently strong, decidedly comfortable, and sufficiently cheap for any one. I have used this dressing in upward of forty cases, both simple and compound, and it has always given me perfect satisfaction. If the fracture be near the knee joint this splint can very easily be carried above that joint and thus immobilize it as well as the ankle joint. In compound fractures, after having properly taken care of the wounds, this splint can be applied directly over the dressings, and if it becomes necessary to change the dressings it can be done without disturbing the fragments at all; and how much more simple and comfortable is this than the old-fashioned fracture box, side splints, suspension or extension apparatus!

(f) In fracture of the neck of the femur in old persons, what is more simple than a plaster-of-Paris bandage made to include the pelvis and extending down to below the knee? How much more comfortable is it than the old-fashioned and barbarous apparatus of Desault or Neill!

(g) Fracture of the lower jaw: It has fallen to my lot to treat a number of cases of this kind where the fracture has been either in the body or the ramus. I remember one case which came to me after eight weeks with non-union and necrosis of the edges of the fragments, in which I removed the necrosed portions and secured the fragments by means of an iron wire passed around the teeth on either side of the line of fracture, getting a further purchase on the fragments by passing a fine wire around the other larger one over the seat of fracture, thus making the larger wire on the inside approximate the teeth—taking up the slack, as it were. The patient never wore any other apparatus than this, and in six weeks was discharged well. Another case of compound fracture of the lower maxilla I have recently handled in this same way, and the patient was discharged in five weeks. If more than this is needed I make a mold of dental composition and place it on the outside of the jaw and secure it by proper bandages. If we can get along without complicated appliances here we are certainly doing our patients a favor.

I will not detain you longer by referring to any more fractures, and will thank you for your attention to this paper, which may have seemed to some of you rather elemen-

tary; but I am a firm believer in the virtue of simplicity in all surgical procedures, and if I have impressed upon any mind here the necessity and value of simplicity in the dressing for fractures, and the fact that with a proper anatomical knowledge and a proper amount of mechanical skill the treatment of fractures is not the difficult task that many would have us believe, I shall feel that my paper has been of some service.

CALIFORNIA BUILDING.

ON THE CLINICAL VALUE OF THE CENTRIFUGE.*

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THE application of centrifugal force to clinical medicine is of recent date. This fact, with a literature on the centrifuge still very meager, seems sufficient justification for a few prefatory remarks, in which we may be permitted to review in a cursory manner the references which have come to our notice while investigating this subject. In 1891, Stenbeck (1), of Stockholm, a medical student, first described the use of the centrifuge for the precipitation of sediments from urine, sputum, and other pathological fluids. His experience seemed to demonstrate the fact that the instrument which he described would soon prove to be an important adjunct for the speedy and ready examination of urinary and other deposits. At the Congress for Internal Medicine, held in 1891, Litten (2) read a paper on the clinical use of the centrifuge, in which he called the attention of the congress to the instrument, and made a very strong argument in favor of its use. He held that the advantages of this method of filtration and sedimentation were a great saving of time, the prevention of fermentation and bacterial contamination, while the late precipitation of crystals in an easily changed urine was excluded. In many of his cases he found in a perfectly clear urine a red precipitate composed of red blood-corpuscles, as shown by the microscope, in which none could be obtained without the instrument. He was the first to demonstrate the ease with which casts, tubercle bacilli, and other micro-organisms were sedimented by the centrifuge in urines, which without it gave but feeble or negative evidence of their presence. He discovered the fact by the aid of the centrifuge that all serous exudates of whatever nature, such also as are not cancerous or tuberculous, contained blood, though the Heller test and the spectroscope gave negative results. These statements, coming from such reliable quarters, at once drew the attention of the profession to this new diagnostic aid, and to-day there is not a well-appointed clinic on the continent of Europe in which the centrifuge is not brought into daily use with growing and abundant data to prove its utility.

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Jaksch (3) described the positive advantage of the combination of the centrifuge and Biedert's method in cases where he was unable to find bacilli after patient and diligent search. At Jaksch's clinic the centrifuge is being used extensively, as is also the hæmatokrit in conjunction with it. The next publication, and the only critical review of the centrifuge which we have found, appears in the *Berliner klinische Wochenschrift*, No. 22, 1892, by Albu (4). He gained his material from the clinic of Guttman at the Moabit Hospital. To this paper we will again refer before concluding.

At a meeting of the New York Pathological Society, held September 23, 1891, Dr. G. C. Freeborn (5) made a report On a Method of Rapidly Collecting Deposits for Microscopic Examination, in which he called attention to Litten's report, and himself demonstrated a home-made machine capable of about nine hundred and fifty revolutions per minute. This had answered the purposes for which it was devised admirably, and it is fully described in the *Medical Record* of February 22, 1892. He concluded that "in ordinary urinary analysis not only would this new method enable the microscopic examination to be made about twenty-four hours sooner than formerly, but it would effectually prevent decomposition of casts, which was liable to occur when the urine had to stand for many hours in order that the deposit might settle."

At a meeting of the New York Surgical Society on May 25, 1892, Dr. Gerster (6) "showed an instrument in which he could rapidly deposit the tubercle bacilli of urine or any other fluid on the bottom of the test tube, whence they could be removed with a pipette and examined microscopically in the ordinary way." He had often been able to clear up an obscure urinary trouble in a short time by the examination of the urine in this way.

The next and most complete paper written on this side of the Atlantic, bearing on this subject, was written by Sondern (7) with the title *The Value of the Centrifugal Apparatus for Diagnostic Purposes*. This was written as a result of the author's experience with two hundred different specimens in the laboratory of Professor A. Jacobi, as well as in his own private practice. His results were satisfactory and did much to bring the instrument to the notice of those American practitioners who do not read German medical literature.

Among the more recent work we find the centrifuge mentioned by Eulenberg (8), also in the supplement to the *Reference Handbook of the Medical Sciences* (9).

Musser (10), in his recent work on *Medical Diagnosis*, in a footnote speaks of the practical value of the centrifuge as a time-saving apparatus, as well as of its other advantages, which had also been mentioned by Litten.

Lenhartz (11) speaks of the advantages of the centrifuge in precipitating bacilli from the urines in which they are scant. The deductions which we offer in this paper are the results of a comparative study of over one hundred urines examined by us during the past three months, in all of which the centrifugalized precipitate was compared with the sediments obtained by the older methods. These include in their number, besides the normal urines examined,

cases of genito-urinary (renal and bladder) tuberculosis, acute and chronic nephritis, interstitial nephritis (both albuminuric and non-albuminuric), pyelitis (both catarrhal and calculous), cancer of the kidney, oxaluria, and the various forms of cystitis.

In the course of our work we have taken pains to study with the microscope the appearances which were presented by the centrifugalized sediments of the normal urine. In the majority of these cases there was only the normal bacterial contamination. We found besides bacteria the presence of bladder epithelium, a stray pus corpuscle, few red blood-corpuscles, occasionally a renal epithelial cell, crystals of uric acid, amorphous urates or occasionally oxalate of lime and phosphate, all in fields richer than those found without the centrifuge. In none of our normal cases have we found casts of any description.

Normal urine does not always yield a precipitate with the centrifuge, when the microscopic examination of the last drop left after removing the supernatant fluid showed a similar picture to that presented by the urine which had not been centrifugalized, if obtained before fermentation has commenced. In those cases in which bacteria were present the centrifuge precipitated only part of them, the supernatant fluid containing a rich remnant; but the normal bacteria were found by us much more abundant in the centrifugalized urine than in the urine examined at a corresponding time without the centrifuge. Albu found that with streptococcus bouillon culture, the precipitate made with the centrifuge was dense, but the fluid above remained cloudy, rich in bacteria, while ultimately it became clear after long standing. He found the same true of sterilized water to which had been added a clear culture of staphylococci. The bacteria were only partly precipitated.

In many cases of albuminuria which were brought to light by insurance examinations the result has not always been satisfactory, owing to a scant sediment upon standing; in many cases no sediment at all. We have in our experience since commencing the use of the centrifuge made a number of insurance examinations in which the applicant apparently enjoyed perfect health, though a permanent or transitory albuminuria was discovered. We have made it a practice to centrifugalize such urines as soon as the test which revealed the presence of the albumin was made, and while in some cases we have not been rewarded with a sediment sufficient for even microscopic examination, in the majority of cases we have found with great promptness a clear and rich microscopic field. As the result of such treatment a positive diagnosis could be made, while existing albuminuria was given its true pathologic significance. Only a few of these cases, which with the centrifuge showed positive results, gave any idea of the source of the albumin by the older method of examination. In a number of cases of non-albuminuric nephritis which had been under observation for many months, the urines of which had been repeatedly examined microscopically with negative results, the centrifuge yielded sufficient epithelium and cast structure to make positive the diagnosis of an interstitial or chronic tubal nephritis.

We have also compared the results obtained in the

urines of primary chronic interstitial nephritis in which there was but a faint trace of albumin and a characteristic low specific gravity, and find in the majority of cases that the centrifuge precipitates a sediment, as a rule scant, holding few hyaline casts, an occasional granular cast, with a few epithelial elements in each microscopic field. This, it appears to us, is a valuable aid in these heretofore puzzling cases and one which we have used with great satisfaction. The examination of the urine of pregnant women, in which there is the occasional presence of albumin, usually faint, without symptoms of renal insufficiency, has yielded positive results; the enormous desquamation of epithelium from the genito urinary tract demonstrated by the centrifuge in these cases is surprising. These urines, as well as many others, readily undergo fermentation; hence it becomes important to gain an early and unchanged sediment. This the centrifuge has given us. The presence or absence of casts or cylindroids has been demonstrated hours before an approximate result was obtained by the usual examination.

In the ordinary form of nephritis, in which the sediment is usually rich, the centrifuge makes it possible to examine before fermentative changes take place. The field obtained is rich in corpuscular and cast elements, while the rapidity with which such sediments are gained becomes an important factor in office consultation. In some of these cases the centrifugalized urine gave a microscopic field so crowded with epithelial and cast elements as to prove a disadvantage. This was readily remedied by diluting the precipitate and re-examining with the microscope.

As an example of the clinical value of the centrifuge in this connection allow us to present the following case:

F. F. H., of Canastota, telegraph operator, aged twenty-five years, presented on the 1st of May, 1894, with every evidence of what I have called genito-urinary neurasthenia. The complex of symptoms it is not necessary for us to rehearse in order to make clear the point which we wish to emphasize. Suffice it to say that this young man's mind had been turned by the fact that albumin was present in his urine. It is important to remember in conjunction with this history that no objective symptoms could be discovered, save persistent albuminuria. A microscopic examination of the urine without the centrifuge proved negative. No sediment could be gained. The first examination of the centrifugalized sediment was also without result. Several slides of the precipitate were prepared, when it was finally found that with the centrifuge there was abundant renal epithelium from the pelvis, kite-shaped, with shingle arrangement, few pus corpuscles, some bladder epithelium, with long, rough, and large uric-acid crystals. Without the centrifuge the same urine at the same time showed a few uric-acid crystals, no pus, no epithelium. The diagnosis of pyelitis was clear. In this case, without the centrifuge, no positive diagnosis could have been made, though the urine had been repeatedly examined by competent and painstaking physicians.

Litten (13) was in all probability led to make use of the centrifuge for the purpose of diagnosing genito-

urinary tuberculosis. He understood, as had all clinicians, the great difficulties which beset the early recognition of this disease, and appreciated as well the benefit which must come from a diagnosis during its incipient stage. Those who have had a considerable experience with renal and bladder tuberculosis have frequently been disappointed by the negative results of urine analysis as well as bacteriological study. One of the most difficult problems which the microscopist encounters is to demonstrate tubercle bacilli in the urine of primary urinary tuberculosis at a time when degeneration or disorganization has not yet taken place. Indeed, it is a question whether the tubercle bacilli are present in the urine before there has been breaking down of the cheesy infiltrating masses. Another point which must be taken into consideration is the rapidity with which primary tuberculosis spreads from its original focus in the urinary tract to others, which may or may not be far distant, as from one kidney to another, or from kidney to bladder. In other cases a cheesy focus with or without consecutive disorganization has accompanied, preceded, or quickly followed upon primary vesical or renal tuberculosis.

Morris (14), Thornton (15), and Rosenstein (16), in their works, are agreed upon the primary character of renal tuberculosis in a good number of cases. We can not hope to reach cases of miliary genito-urinary tuberculosis, which almost without exception affects both kidneys at the same time, though not always to an equal degree (Morris (17)), but there can be no doubt that during the early stage of renal or bladder tuberculosis, when the disease is still confined to one organ, much could be done if the physician could appreciate the true condition and could with reasonable certainty point out to the surgeon the seat of this primary focus, for its prompt and safe removal. In such cases the cystoscopic examination will, in conjunction with the centrifuge, prove a valuable aid. In this connection we have had a very interesting and profitable experience since working with the centrifuge.

During many years we had a man, aged seventy years, under observation, who had vague urinary symptoms, none of which were characteristic of any particular disease, while physical examination of the bladder and genitals proved negative. Associating his urinary symptoms with his general condition, we were reasonably certain, after excluding stone and tumor, that we were dealing with a disseminated genito-urinary tuberculosis of an infiltrating and chronic nature. During these years of observation, and before working with the centrifuge, we had made frequent examinations in search of tubercle bacilli. All of these were negative. We found on microscopic examination the presence of pus, bladder epithelium, and occasional red blood-corpuscles, but nothing on staining which justified a bacteriological diagnosis of urinary tuberculosis. The precipitate of the second urine centrifugalized was stained after the Gabbet method, and besides yielding a field rich in corpuscular elements, bladder and renal epithelium, scattered about were tubercle bacilli in small numbers. Not all centrifugalized urinary specimens of this patient demonstrated the presence of tubercle bacilli,

but they could be seen in a sufficient number to make the diagnosis certain, and the treatment was indicated thereby. This experience we have repeated in other specimens where methods of staining without the use of the centrifuge have given negative results, while with it we have been able to make a positive diagnosis. As we look over our experience we recall cases which, with our newer methods of precipitation, might have been diagnosed early and which were not recognized until general genito-urinary infection had followed surgical operation, or had already existed unrecognized before the operation was undertaken. In one case seen in consultation, operation was resorted to without a previous positive diagnosis, though the urine had been frequently examined and its sediment stained. At the operation it was found that the kidney was tuberculous; nephrectomy was done, death resulting in the course of a few months, with evidences of disseminated genito-urinary tuberculosis.

That a number of persistent albuminurias which we meet without subjective or objective symptoms sufficient to make a diagnosis certain, often in association with insurance examinations, are due to latent or progressive urinary tuberculosis, there can be no doubt, and we are equally certain that the urine of these patients repeatedly centrifugalized will demonstrate the presence of tubercle bacilli. One such case has already come to my notice within the past few months. In considering this subject of genito-urinary tuberculosis I wish to call your attention to the fact that the centrifuge more readily precipitates the tubercle bacillus from fluids than any other of the various micro-organisms.

Scheuerlen (18) experimented with bacteria suspended in various fluids, and concluded, after using an apparatus which made from two to four thousand revolutions per minute, that the centrifuge in no way influenced the life or virulence of bacteria; that mobile as well as immovable bacilli are partly precipitated from watery solutions. Centrifugalizing milk proved that most bacteria, including the typhoid and cholera bacilli, remained in the cream; the others were found suspended in the milk, but few precipitating, while the tubercle bacilli proved an exception to this rule; the larger number of these were centrifugalized and sank to the bottom, while the remainder, which proved to be a considerable number, were found in the cream. This experiment with the centrifuge, it appears to us, must lead to practical deductions, and is another argument in favor of the strictest surveillance of dairies and city milk stations.

We have found the centrifuge of value in making quantitative examinations of urine for albumin. The practical test ordinarily used by the physician is the Esbach's test, and requires twenty-four hours for precipitation. We have experimented extensively with the picric acid solution, and find after comparing our results with the sediment in the albuminometer that there is no practical difference, while the albumin is precipitated by the centrifuge in from four to ten minutes, with decided advantage in favor of the rapid method, as we will presently demonstrate. The urine is mixed with an equal quantity of the picric-acid solution

ordinarily used, in one tube, while in another tube we place a quantity of urine equal to that already mixed with the test solution for the purpose of noting the quantity of sediment centrifugalized from it. The object of this control tube can be readily understood if the fact is taken into consideration that with picric acid there is precipitated not only albumin but mucin and peptone, while the larger number of pus elements are centrifugalized with the other insoluble constituents present in the urine, all forming part of the precipitate. Therefore, the tube containing the test solution with the urine contains, besides the precipitated serum-albumin, an added precipitate equal to that in the control tube. On many occasions we have repeatedly centrifugalized the supernatant urine with the picric-acid diluent to find almost invariably that the precipitate is so slight that it remains a mere haze or there is none at all. The *éprouvette* can be graduated (and this we are now having done), making it possible to read the result of the test, as we now do with the Esbach albuminometer. While writing this paper we examined a urine which on ordinary chemical and microscopic examination gave negative results. The centrifugalized urine showed granular casts with broken-down epithelium. This led to a thorough chemical examination with the more delicate picric-acid test after the method of George Johnson, when albumin was found to be present in small quantity. The centrifuge also precipitated the merest cloud with the Esbach fluid. The case proved to be one of secondary contraction following chronic tubal nephritis. The difference in the quantity of precipitate in the two tubes shows the amount of albumin present in the urine.

We have reason to believe as a result of our work with the centrifuge that the rapid precipitation of albumin with picric acid, and its comparison with the sediment obtained in the undiluted urine centrifugalized an equal time, has a very decided advantage over the older, slower method, and is more accurate, particularly in cases where there is a catarrhal inflammation of the bladder or other urinary organs, with abundant presence of mucus in the urine, associated with or without nephritis.

We have repeatedly obtained a red precipitate from perfectly clear urine with the centrifuge, which on microscopic examination showed the presence of blood, while with the older method not a single corpuscle was found. In the ordinary cases of hæmaturia or cancerous disease of the genito-urinary tract the centrifuge simply yielded a richer, more crowded field than did the ordinary non-centrifugalized sediment. Sondern (19) speaks of the application of the centrifuge for the purpose of differentiating hæmaturia and hæmoglobinuria. In the former repeated centrifugalizing clears the urine; when the latter condition alone exists the color of the specimen is not changed. In some of our doubtful cases the Heller test was used with negative results, while the centrifuge gave a positive picture showing abundant red blood-corpuscles. We have had a number of cases of oxaluria in which we were enabled by means of the centrifuge to note the improvement following our treatment in the appearance of the microscopic field.

We have had very satisfactory results with the centri

fuge in the examination of sputum for tubercle bacilli, pneumococci, and other bacterial and elastic fibers. The first are oftentimes present in such small numbers before advanced pulmonary changes have taken place that it becomes important to precipitate as great a number as possible for staining. For this class of cases Biedert (20) and von Sehlen (21) each recommended a method by which it was sought to dilute the sputum with alkalis, setting the mixture aside for precipitation. The former diluted the sputum with water, then added caustic soda, and boiled the solution until a homogeneous fluid resulted, which he allowed to deposit, this process occupying at least twenty-four hours. In the Sehlen method the sputum is thoroughly mixed with a hot solution of borax and boric acid (twelve and a half per cent. of each), and in four days the sediment is gained for further treatment. If the tuberculous sputum is mixed with either of these fluids the centrifuge will precipitate the bacilli in from five to eight minutes, more completely than by the older methods alone and with a great saving of time, an advantage which we often appreciate. We have experimented with dried sputum, diluting with the von Sehlen solution, and centrifugalizing with very pleasing and positive results. The practical advantage of this method was demonstrated in a recent case which we saw in consultation with Dr. Weidman at Marcellus, where the sputum, all that could be obtained while there, dried on the plate. The diagnosis depended largely on the result of bacteriological examination which we made after the method above described. The attending physician received his report in less than eighteen hours after the consultation. It is not always necessary to dilute the sputum, but in many cases it is of decided advantage.

The element of time plays an important rôle in the examination of serous fluids and other exudates. With pleural effusion there is oftentimes such a rapid coagulation (the micro-organisms being held in the coagulum) that no desirable precipitate can be obtained. Such fluids have yielded characteristic and satisfactory results with the almost immediate use of the centrifuge. In all of our cases of pleural effusion we found with the centrifuge the presence of pneumococci, either of Fraenkel or of Friedländer, as well as blood-corpuscles.

In cancerous disease of the urinary tract, particularly the bladder and kidney, the centrifuge has precipitated epithelial elements and characteristic shreds which were not always found by ordinary sedimentation.

The conclusions which are forced upon us after a careful consideration of this subject from a practical point of view are:

1. That the time gained by centrifugalizing urine is of great advantage in many cases where an unaltered urine is desired (fermentation not having taken place), such early precipitates showing the epithelial casts and other structures before changes in shape, size, and contour occur, without bacterial contamination.

2. The centrifuge does not yield a precipitate in all urines, though in the majority of those urines in which no decided deposit takes place there is a haze or cloudiness

near the bottom of the *éprouvette* which with care can be gained and oftentimes gives a valuable microscopic picture. In some urines absolutely no precipitation or haze can be found.

3. Centrifugalizing demonstrates, as no other method can, the insoluble and suspended elements present in an abnormal urine.

4. The presence of blood in the urine can often be demonstrated by the aid of the centrifuge when the older method fails to show it.

5. In cases of transitory, cyclic, or permanent albuminuria, without marked subjective or objective symptoms accompanying, the centrifuge will oftentimes aid in establishing the underlying pathologic condition; hence, for the insurance examiner the instrument becomes invaluable.

6. No other method of urinary examination will be as likely to demonstrate primary genito-urinary tuberculosis. The repeated examination of suspected urine is necessary, as failures are frequent and tubercle bacilli are present in small numbers only.

7. The centrifuge precipitates albumin with picric acid in from five to ten minutes, the test being equal in value to Esbach's, having the decided advantage over the latter (which requires fully twenty-four hours) that only a short time is needed, and that the mucin and other insoluble elements can be measured or weighed.

8. The prompt bacteriological examination of serous exudates and other pathologic fluids can be made by the aid of the centrifuge more thoroughly and with greater satisfaction than by any of the older methods, while occasionally tubercle bacilli can be found in sputum with the centrifuge which can not be found without it.

9. In twenty-one per cent. of the cases examined the centrifuge yielded results which led to more accurate diagnoses than could otherwise have been made. Our work with the centrifuge has emphasized the fact that in the examination of urinary sediments "it is important to observe not only the kind and number of casts, but also to consider very cautiously the number and characteristics of all accompanying elements" (Bizzozero (22)). We agree with Albu, who holds that the centrifuge has "unfolded no new diagnostic principles"; we do maintain, however, that by means of it we attain to the very refinement of diagnosis.

Bibliography.

1. Stenbeck. *Hygeia*, Stockholm, 1891, 40-51.
2. Litten. *Deutsche medizinische Wochenschrift*, 1891, No. 23; *Therapeutische Monatshefte*, 1891, p. 413.
3. Jaksch. *Prag medizinische Wochenschrift*, 1891, No. 18.
4. Albu. *Berliner klinische Wochenschrift*, 1892, No. 22.
5. Freeborn. *Medical Record*, Feb. 27, 1892.
6. Gerster. *New York Medical Journal*, Sept. 10, 1892.
7. Sondern. *New York Medical Journal*, Feb. 25, 1893.
8. Eulenberg. *Encyclopädische Jahrbücher*, dritter Jahrgang, p. 367. Lieferung 246.
9. Wood's Supplement to the *Reference Handbook of the Medical Sciences*, pp. 28 and 636.
10. Musser. *Medical Diagnosis*. Lea Brothers & Co., Philadelphia, 1894, p. 649.
11. Lenhartz. *Mikroskopie und Chemie am Krankenbette*. Julius Springer, Berlin, 1893, p. 27.

12. Albu. *Berliner klinische Wochenschrift*, 1892, No. 22.
13. Litten. *Deutsche medizinische Wochenschrift*, 1891, No. 23.
14. Morris. *Surgical Diseases of the Kidney*. Philadelphia, pp. 473-482.
15. Thornton. *Surgery of the Kidneys* (Harveian Lectures, 1889), p. 46, etc.
16. Rosenstein. *Nierenkrankheiten*. Berlin, 1894, p. 537.
17. Morris. *Surgical Diseases of the Kidney*. Philadelphia, p. 473-482.
18. Scheuerlin. *Arbeiten aus dem k. Gesundheitsamte*. Band vii, S. 255 ff.; *Berliner klinische Wochenschrift*, 1892, p. 831.
19. Sondern. *New York Medical Journal*, Feb. 25, 1893.
20. Biedert. *Berliner klinische Wochenschrift*, 1886, No. 42-43.
21. V. Sehlen. *Centralblatt f. Bacterien- und Parasitenkunde*, 1888, Nos. 22 and 23.
22. Bizzozero. *Klinische Mikroskopie*. Erlangen, 1887, p. 287.

516 PROSPECT AVENUE.

A CASE OF FOREIGN BODY (GOLD COIN) ENGAGED IN THE VENTRICLES OF THE LARYNX.*

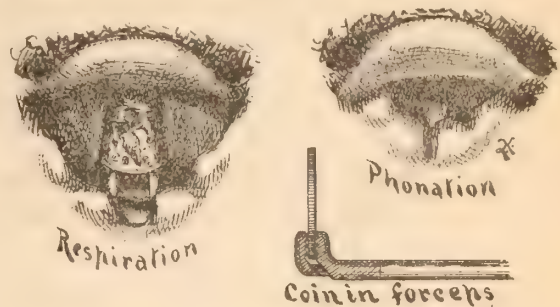
BY A. W. DE ROALDES, M. D.,
NEW ORLEANS.

SOME months ago, Lester C., aged twenty-five years, a powerfully built man, in good health, but somewhat addicted to alcoholic abuses, was talking with some friends in a farmer's house near Crowley, La. One of the men present produced a \$2.50 gold piece and displayed it somewhat as a curiosity. The patient snatched the coin from the hand of his friend by way of a joke, and, putting it in his mouth, announced that it would be the last seen of the coin, as he was going to swallow it. Something was said in the conversation which excited laughter, and the coin dropped down in the man's larynx. He was immediately seized with intense dyspnoea, and very severe cough and gagging. After a while the breathing became easier and the cough abated. Was seen by Dr. Morris, of Crowley, and another physician, who advised his removal to New Orleans; he was brought by his friends to my office thirty hours after the accident.

The voice was simply husky, but otherwise he breathed now quite freely. There is a slight difficulty on swallowing. Upon pressure of the larynx, the patient referred the position of the coin to a spot over the region of the ventricles and vocal cords. The coin was readily detected by the laryngoscopic mirror. Everything was prepared for its extraction and for a possible tracheotomy in case it slipped lower down in the attempt at removal. A five-per-cent. solution of cocaine was liberally sprayed into the larynx, and with the aid of a heliostat the rays of a bright sunlight were reflected in the larynx, and the parts were accurately drawn by Dr. G. Q. Kohne, of this city, who was sent for and kindly consented to come to my office.

As you will see in his excellent drawing, the coin was seen impacted in the larynx between the vocal cords and the ventricular bands, with its surfaces up and down, reverse uppermost, almost completely filling up the chink of the glottis, only a small, transversely oblong breathing space being left in ordinary respiration between the south pole of the coin in front and the hyperæmic mucous membrane of the inter-arytænoid

space behind (inverted image). The segments of the coin corresponding to the extremities of its equatorial line were protruding into the ventricles and well imbedded under the false vocal bands. These covered a portion of its circumference at each side, leaving exposed a triangular metallic surface, the base of which was formed by the free edge of the coin, while the apex was overhung by the epiglottis.



The coin was solidly fixed, as could be demonstrated by tapping its upper surface with a stout laryngeal probe. When attempting to phonate the vowel A, the arytenoids and processus vocales were seen to approximate. When asked to try and emit forcibly a sound in the upper register, as "I," for instance, the coin was completely surrounded and encircled by the soft parts of the rima glottidis and the patient at once suffocated. This condition is well shown in the drawing. After demonstrating at leisure the case to those present, and having obtained an abolition of the laryngeal reflexes, thanks to the careful cocainization of the parts by my assistant, Dr. Scheppegegrell, I at once introduced, with the help of a laryngeal mirror, a Schrötter's forceps with jaws, possessed of an up-and-down power of prehension, the instrument being introduced laterally at first, so that the lower jaw would clear the posterior edge of the coin. The handle was then brought in the middle line, and the jaws of the forceps were then closed by the lever in the handle, and the coin removed.

The resistance offered by the vocal bands was such that, feeling that my hold was slipping, and fearing a repetition of the accident which happened in Dr. Ives's case (swallowing of the coin), or falling of the coin into the trachea, I hastily put aside the mirror, as Grazi did in his observation, and strengthened my hold by additional pressure with my left hand on the handle of the instrument, and jerked out the coin, as it were, from its bed. The patient was discharged the next day in very good condition.

With this experience I can not recommend too highly the use of a strong Schrötter's forceps, and advise the operator to lay aside his laryngeal mirror after having grasped the coin, in order to strengthen his hold at the handle with the fingers of the left hand, which might also be used to lift up the instrument on the course of its stem.

Bibliographical References.

- Duncan, J. Removal of a Coin from the Larynx by Inversion of the Body. *Northern Journal of Medicine*, Edinburgh, 1845, vol. ii, p. 220.
- Geoghegan, T. G. Expulsion of a Coin from the Larynx by an Act of Coughing. *Dublin Medical Press*, 1854, p. 225.
- Adams, A. L. A Sovereign Impacted in the Larynx; Removal Two Months afterward. *Lancet*, 1859, vol. ii, p. 395.
- Sanderson, J. B., and Hulke, J. W. Case in which a Sixpence was Lodged in the Larynx during Ten Weeks. *Lancet*, 1865, vol. ii, p. 39; also *Medico-chirurgical Transactions*, London, 1865, vol. xlviii, p. 201.

* Read before the American Laryngological Association at its sixteenth annual congress.

Cameron, J. Case of Removal of a Penny which had been Impacted for Six Years in the Larynx. *Liverpool Medical and Surgical Reports*, 1870, vol. iv, p. 180; reported also by James Petrie in *British Medical Journal*, August 20, 1870, pp. 186-187.

Smith, Henry. Case where Half a Sovereign was Impacted in the Larynx. *British Medical Journal*, 1871, vol. i, p. 7.

Grazzi, Vittorio. Storia della penetrazione nella larynge di una moneta di due centesimi estratta dopo 43 giorni per le vie naturali. *Bolletino delle malattie dell' orecchio, della gola e del naso*, 1882, vol. ii, p. 77.

Ives, Frank L. Two Cases of Foreign Body (Coins) in the Larynx: Removal. *Archives of Laryngology*, New York, 1883, vol. iv, p. 204.

Weir. Removal from the Larynx of a Two-cent Piece and a Penny. *New York Medical Journal*, 1890, vol. ii, p. 243.

A CASE OF EXUDATIVE PHARYNGITIS.*

By WILLIAM C. GLASGOW, M. D.,

ST. LOUIS.

I AM indebted to Dr. E. W. Saunders, the physician in charge, for the history of this case:

Child, aged ten months, very large and robust; previous health perfectly good. After unusual exposure to cold was seized with an otalgia; no fever. After two days the earache ceased, coryza set in, and fever developed. The temperature gradually rose to 104° in the evening, with marked morning remissions. Torrents of mucus were unceasingly poured out from the nares, blistering not only the muco-cutaneous surfaces but even the skin of the neck and hands wherever it touched. The secretion from the fauces was almost as abundant.

There then developed an exudate upon the tonsils, the uvula, the soft palate, and the pharynx; none was visible in the anterior nares. The patches were persistently white, very much elevated, easily detached, and left no ulcerated surface, except on the palate, where it was probably due to mechanical irritation. The larynx could not be seen; but there was aphonia, lasting far into convalescence.

Dyspnœa became so urgent that preparations for intubation were made. Deglutition was so difficult that the child took nothing willingly, and at every effort some fluid was returned, very much as in a case of diphtheritic paralysis.

The lesions upon the skin were very similar to those upon the mucous membranes, only the edges were raised, and upon an excoriated base the exudate appeared. There was no lymphadenitis. The bronchial mucous membrane was never involved, neither was that of the stomach and intestines. The nutrition was remarkably preserved, owing to forced feeding with skillful nursing. The resemblance to scarlet fever or diphtheria was not close enough to make the differential diagnosis very difficult at any stage of the case.

The treatment was benzoate of sodium, salol, brandy freely administered, and locally the peroxide of hydrogen with boro-glyceride (8 to 1) diluted with warm water and sprayed into the nose and throat. When a little bicarbonate of sodium was added to this solution the irritating effect became immediately apparent (just as in cases of scarlet fever), and the reason for this is obvious when it is taken into consideration that the discharge is highly alkaline.

Aristol was found to be very healing to the skin lesions. Convalescence was remarkably rapid and complete, being only slightly interrupted by a suppurative otitis.

* Read before the American Laryngological Association at its sixteenth annual congress.

The whole duration of the case was about three weeks. A bacteriological examination of the secretion showed a large number of streptococci.

I have considered this case to be one of the protean forms of influenza. The points of interest are the mild resemblance it bears to diphtheria and the enormous amount of alkaline discharge, together with the peculiar character of the exudate.

CONTRIBUTION TO THE STUDY OF THE ETIOLOGY OF RHEUMATIC AFFECTIONS OF THE BODY DUE TO TONSILLAR DISEASES.*

By H. L. WAGNER, M. D.,

SAN FRANCISCO.

The tonsil has been justly termed by Gerhard a physiological wound—an inlet into the system guarded by leucocytes, which we have learned of late protect the body against the invasions of various micro-organisms. If through inherited or acquired predisposition the energy of these leucocytes is diminished, or if the tonsil in a diseased state does not allow these corpuscles to migrate, then a soil may be given for infectious diseases, such as diphtheria, scarlatina, amygdalitis, etc.

The sequences which sometimes follow these diseases are important to observe—paralysis of various parts of the body after diphtheria, and also articular rheumatic affections following follicular amygdalitis. The results gained by clinical studies and bacteriological investigations in follicular amygdalitis, followed by rheumatic affections, are what I particularly desire to refer to.

The question which presents itself is, whether these rheumatic affections are produced by the germs (*Staphylococcus albus et aureus*, Fraenkel's pneumococcus, etc.) migrating from the tonsillar tissues into other portions of the body, causing rheumatism, or whether they remain in or about the tonsils, sending forth and distributing their ptomaines or poisonous products into the system.

The results of my investigations, which I will give you in brief, show in follicular amygdalitis a migration of these germs, proving that rheumatism here is not caused directly by ptomaines.

Clinical observations show that the joints which are mostly in use are the ones generally affected; for instance, the arytaenoid cartilages of the larynx of singers (five cases), the knee joints of shoe dealers, owing to the constant kneeling posture (two cases), and the wrist joint of a violinist (one case) and bookkeepers (two cases). Referring to the two cases above mentioned, where rheumatism of the knee joint developed, the bacteriological investigation showed that the synovial fluid obtained by tapping of the joint contained the same micro-organisms as were found in the diseased tonsil. I was also able to identify the same germs in the urine of nearly all the cases. The family and clinical history of all these patients showed no signs of rheumatism before the attack of this tonsillar disease.

* Read before the American Laryngological Association at its sixteenth annual congress.

THE
NEW YORK MEDICAL JOURNAL,
A Weekly Review of Medicine.

Published by
D. APPLETON & Co.

Edited by
FRANK P. FOSTER, M. D.

NEW YORK, SATURDAY, OCTOBER 27, 1894.

THE HYGIENE OF MOUNTAIN-CLIMBING.

THE *Journal des praticiens* for October 6th publishes an abstract of an article from the *Revue du Cercle militaire* in which the writer lays down certain rules relative to military hygiene, and applicable also, he says, to tourists in the Alps. At great altitudes, he remarks, not much meat is required, but fat and farinaceous food should form the principal diet; at least two ounces daily of the first, in the form of lard, for each person. Coffee is a very important part of the breakfast, and of the repast at the main halting places. It is a stimulant and a febrifuge; therefore, too much of it can not be distributed. Water is always pure and wholesome in the mountains, but it must not be taken directly from the glaciers, as it is either too cold, non-aerated, or contaminated with organic matter. It should be taken lower down, where it has become purified by dashing over the stones and absorbing air. It has often been said that alcoholic drinks should be avoided, such as cognac, etc., as these liquors give rise to vertigo and profuse perspiration. The truth is, that it is more often the bad quality of these liquors which gives rise to these accidents, and since good brandy can not easily be secured, it is better to abstain entirely from its use. Badly drained and dirty houses should be avoided, and a hayloft or the bare boards of a barn preferred to the ill-conditioned pallet purchased at a costly price. During the night the eyes must be carefully screened, and, whenever it is possible, the clothes entirely removed, as the rest thus obtained is more restorative. In bivouac, sleeping directly on the ground should not be allowed. A march should not be begun without taking food; a piece of bread soaked in hot coffee should be taken, thus avoiding the effects of the early morning cold, and in some cases, rare it is true in the Alps, escaping the deleterious influence of marshy places. Cold milk or wine at this time should not be taken, as they give rise to a feeling of weight in the stomach. It is essential that the men should become accustomed to attend to defecation at a fixed hour, as regularity contributes greatly to prevent intestinal derangements.

In ascending a mountain the mouth should be closed, so as to prevent it from becoming dry. This is easy to say, says the writer, but at the moment of the greatest exertion internal combustion is more active, requiring a larger amount of oxygen to be drawn in, and the nose is not always sufficient for that. With regard to drinking water while marching, for four years the soldiers with whom the writer has served have

lived in the Alps, and no accidents of any kind occasioned by drinking the water have been observed by him. Furthermore, those who have been prevented from drinking have the more easily become victims of sunstroke. A quart of water taken during the march can not cause harm, as it replaces the liquid thrown off by perspiration. While marching, the men may open their jackets, which should be buttoned up when they are resting; lying on the face ought not to be allowed. At the principal halting places the men should have time to change their shirts for dry ones before beginning the march again. The article closes with the familiar reminder that at great altitudes the cold and snow often give rise to an unconquerable desire to sleep, which, however, must not be given way to, as a torpor then takes possession of the entire body and death gradually follows.

ENGLISH APPRECIATION OF OLIVER WENDELL HOLMES.

It is gratifying to observe the extent to which our British brethren appreciate the loss to the medical profession and to that of letters by the death of Oliver Wendell Holmes. The *Lancet* and the *British Medical Journal* publish tender and sympathetic sketches of his character and career. The last-named journal gives an excellent portrait of him, and the editor, Mr. Ernest Hart, contributes a separate article in the shape of reminiscences of the author's personal association with the dead poet for a brief period a little more than a year ago. On the whole, Mr. Hart seems to have understood Dr. Holmes very well, considering the difference of the two men in nationality and personal cast, but we must suppose he was in error in taking Holmes seriously when he called a visiting card a "ticket."

If we claim a portion in the heritage of that part of our common literature that is of British birth—and we are not by any means inclined to waive that claim—we must in all fairness allow that what our own countrymen have contributed to that literature may in like measure be claimed by our kinsmen of the United Kingdom. And this we do not yield grudgingly, but concede most cordially, only too proud to reflect that we have made a creditable beginning of the work of repaying a loan, so to speak. It is as pleasant for us to perceive that our Holmes, Longfellow, Irving, Hawthorne, and Bryant are remembered gratefully on the other side of the Atlantic as to tell ourselves that our forefathers were the compatriots of far-off generations of the great men of the Old World. The accident of birth can not in any degree impair the admiration felt all over the world for men who have done something noteworthy in the way of instructing, improving, or entertaining their fellow-men. Among such men Holmes is everywhere known to have held a high place; in addition, he so portrayed his own genial and benignant personality in his writings—and that with all truthfulness and in all unconsciousness—as to endear himself to his readers in an uncommon measure. All this is plainly to be seen in the articles published by our English contemporaries. We have not

space left to quote from them adequately in this issue, but next week we shall endeavor to present extracts showing their purport.

MINOR PARAGRAPHS.

AN ANTIDOTE TO HYDROCYANIC ACID.

THE *Lyon médical* for October 4th says that M. Johann Antal, a Hungarian chemist, has discovered a new mineral compound, nitrate of cobalt, which promises to be a very efficacious antidote in cases of poisoning with potassium cyanide or hydrocyanic acid. Tried first on animals, this product has since been employed, always successfully, in more than forty cases of accidental poisoning.

THE REGULATION OF MEDICAL PRACTICE IN MASSACHUSETTS.

WE recently published a statement to the effect that Massachusetts was among the States in which there were practically no legal requirements to be complied with before a person was entitled to practice medicine in the State. We are glad to learn that this is no longer the case. It seems that a registration law was approved by the Governor in June of this year.

ITEMS, ETC.

Dead Bodies in the River Seine.—The *Lyon médical* for October 2d publishes the following list of dead bodies taken from the river during the year 1893: 5,652 dogs, 3,307 cats, 9,108 rats, 1,720 fowls, 3,942 other birds of various kinds, 4,209 rabbits, 789 pigs, 7 calves, 4 hedgehogs, 33 horses, 15 sheep, 2 colts, 13 monkeys, and 6 snakes, making a total of 28,807. The number of human bodies is not given.

The Medical Society of the County of New York.—At the annual meeting, held on Monday evening, the 22d inst., officers for the ensuing year were elected as follows: President, Dr. Egbert H. Grandin; vice-presidents, Dr. Wendell C. Phillips and Dr. S. Henry Dessau; secretary, Dr. Charles H. Avery; assistant secretary, Dr. William E. Bullard; treasurer, Dr. John S. Warren; censors, Dr. Seneca D. Powell, Dr. Edward D. Fisher, Dr. George Thomas Jackson, Dr. Charles H. Knight, and Dr. Charles L. Gibson.

The New House of Relief of the Society of the New York Hospital, at the corner of Hudson and Jay Streets, will be opened for inspection to an invited company on Tuesday afternoon, the 30th inst. It is to take the place of the emergency branch of the New York Hospital, commonly known as the Chambers Street Hospital.

Bellevue Hospital.—It is announced that Dr. Lucius C. Adamson has been appointed to succeed the late Dr. Stuart Douglas in the charge of the insane patients.

The New York Cancer Hospital.—Dr. Charles N. Dowd has been appointed a surgeon to the hospital.

Changes of Address.—Dr. George Knowles Swinburne, to No. 48 East Twenty-sixth Street; Dr. Orville Jay Wilsey (after November 1st), to No. 149 Lexington Avenue.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from October 14 to October 20, 1894:*

SWIFT, EUGENE L., Captain and Assistant Surgeon, is granted leave of absence for one month, with permission to apply to the proper authority for an extension of one month.

WARE, ISAAO P., First Lieutenant and Assistant Surgeon. By direction of the Acting Secretary of War, so much of Paragraph 1, S. O. 233, A. G. O., October 4, 1894, as directs him to report to the commanding officer at Camp Eagle Pass, Texas, after his relief from duty at Fort Supply, is so amended as to direct him to report in person to the commanding officer at Fort Clark, Texas, for duty at that post.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending October 20, 1894:*

CURTIS, L. W., Passed Assistant Surgeon. Ordered to the Chelsea Hospital, Massachusetts.

CRAWFORD, M. H., Surgeon. Ordered to the U. S. Steamer Constellation.

DICKSON, S. H., Surgeon. Ordered to temporary duty on U. S. Receiving-ship Dale.

GRAYATT, C. U., Surgeon. Detached from the U. S. Receiving-ship Dale and ordered home to await orders.

DEAN, R. C., Medical Director. Detailed as president of the board of medical examiners, Navy Department.

BATES, N. L., Medical Director. Detailed as a member of the board of medical examiners, Navy Department.

BRADLEY, MICHAEL, Medical Director. Detailed as a member of the board of medical examiners, Navy Department.

SCOFIELD, W. K., Medical Director. Detailed as president of the board of medical examiners, League Island, Pa.

Society Meetings for the Coming Week:

TUESDAY, *October 30th*: Medical Societies of the Counties of Queens (semi-annual—Garden City) and Rockland (semi-annual), N. Y.; Boston Society of Medical Sciences (private).

WEDNESDAY, *October 31st*: Auburn, N. Y., City Medical Association; Gloucester, N. J., County Medical Society (quarterly); Middlesex, Mass., North District Medical Society (Lowell).

THURSDAY, *November 1st*: New York Academy of Medicine; Society of Physicians of the Village of Canandaigua, N. Y.; Medical Society of the County of Orleans (annual—Albion), N. Y.; Brooklyn Surgical Society; Boston Medico-psychological Association; Obstetrical Society of Philadelphia; United States Naval Medical Society (Washington).

FRIDAY, *November 2d*: Practitioners' Society of New York (private); Baltimore Clinical Society.

SATURDAY, *November 3d*: Clinical Society of the New York Post-graduate Medical School and Hospital; Manhattan Medical and Surgical Society (private), New York; Miller's River, Mass., Medical Society.

Answers to Correspondents:

No. 428.—Address Mr. Leonard A. Bidwell, honorary secretary, West London Hospital, Hammersmith Road, W., London.

Letters to the Editor.

MEDICAL JOURNALS AND MEDICAL BOOKS.

NEW YORK, *October 15, 1894.*

To the Editor of the *New York Medical Journal*:

SIR: In your comments in your *Journal* of October 6th, on our letter to you published in the same number, we note that you have quite misunderstood our reference to publishers' paying the freight charges on books sent by them to editors. We

made no reference whatever to the comparative expense, as between publishers and editors, but endeavored to make plain the real issue in the matter as we look at it—viz., that these charges would "amount to a mere pittance to editors in comparison with the cost of books, which would otherwise have to be purchased to meet the just expectations of journal subscribers." It appears to us that this quotation from our former letter was hastily read by you.

As to the system in vogue being so thoroughly established that the cost of editorial copies and the expenses incident to them is taken into account in the publishers' contracts with the authors, we do not agree with you. So far as we know, publishers do not go into an estimate on each book they publish as to the details connected with its sales. Contracts with authors are almost invariably made on a uniform basis.

As to it being a greater hardship for the journal to pay the expenses on the books received by it, the question is simply a comparison with the cost of the books, which otherwise it ought to buy for its subscribers' sakes. We do not think there would be any discourtesy in an editor declining to receive a book, provided always the reason for such action was based upon what is the only proper ground—viz., the editor's judgment as to the value of a review of any particular book to his subscribers. He is and necessarily must be the sole arbiter of such a question as this, and no publisher has any right whatever to take him to task for it. Probably the better way, and one which possibly may eventually come about, would be for publishers to inform journals to which they propose to send their books, of their intention, in advance of sending them, with a request that they be notified if the editor would like to receive them for purposes of review.

What we particularly desire in this matter is primarily to eradicate wholly from the minds of editors, and a few publishers also, the idea that courtesy has any connection with the giving and reviewing of editorial copies, and to emphasize your own statement that it is purely a business transaction. Next, we believe, as stated in ours to you of the 25th ult., that all journals everywhere which profess to keep their subscribers generally informed are in duty bound to review all books published which come to the editor's knowledge, whether presented by the publisher or not, if they be of sufficient interest to their subscribers. This has for some time past been the policy of the *Medical Record* and the *American Journal of Obstetrics*.

WILLIAM WOOD & CO.

Proceedings of Societies.

NEW YORK STATE MEDICAL ASSOCIATION.

Eleventh Annual Meeting, held in New York on Tuesday, Wednesday, and Thursday, October 9, 10, and 11, 1894.

The President, Dr. THOMAS D. STRONG, in the Chair.

The President's Address urged the importance of a thorough preparatory education, particularly in the classics, for persons intending to study medicine, and also besought medical practitioners to take a more active part in the general affairs of the communities in which they lived.

Foreign Body in the Bladder.—Dr. ZERA J. LUSK, of Wyoming County, exhibited a wire nail, three inches long, which he had removed from a bladder, where it was alleged it had been for four years. The nail was found lying directly across the bladder. The operation was entirely successful.

Traumatic Epilepsy.—Dr. LUSK also reported a case of traumatic epilepsy, with a successful operation. The patient was a Syrian, twenty-two years of age, who had been brought to him with fractures of the arm and a stab wound. That evening he had been very much excited, and had had a temperature of 99° F. The next day there had been complete aphasia, with an expressionless face and dribbling of saliva. He had then had convulsions, increasingly severe and frequent up to the tenth day, at which time Dr. Lusk had trephined over the speech center. He had found two fractures of the skull with depression of bone. On removing a button of bone he had found and removed a large, firm epidural clot. On the day preceding the operation the patient had had twenty-eight convulsions; on the day following the operation there had been eight, and the next day four convulsions. After that there had been no more convulsions, and the normal facial expression had returned. On the fourth day he had been able to speak a little. During convalescence it had been noticed that he could talk in our language, but had lost the power of speaking in his own language. The explanation of this was probably that, hearing our language spoken while he was recovering, he was able to speak in it first. The clot had covered the lower part of the fissure of Rolando.

Dr. E. D. FERGUSON, of Rensselaer County, said that we should not count too closely on finding the lesion just where the physiological and anatomical centers were known to be located, for reflex and transmitted influences exerted a powerful modifying influence. In support of this view he reported a case in which, from the symptoms, one would have expected to find the lesion rather high up on the fissure of Rolando, whereas as a matter of fact the operation revealed a large blood clot near the base of the cranium. The patient had made an uninterrupted recovery after the operation.

Dr. DARWIN COLVIN, of Wayne County, reported a case of gunshot wound causing epilepsy, where he had succeeded in relieving the condition by trephining the skull. Such cases appeared from the record to be very rare.

A New Non-conducting Speculum for Post-partum Intra-uterine Douching.—Dr. EDEN DELPHEY, of New York County, exhibited such an instrument. It was made of hard rubber, and readily admitted of conducting the irrigating fluid into a pail suspended from the handle of the speculum.

Anæsthesia and Death; Attempted Extortion Successfully Resisted.—Dr. DELPHEY reported a case in which a suit for damages had been entered against another physician and himself. The patient had been a man of fifty-two years, who had insisted on taking an anæsthetic for the amputation of a gangrenous finger. The urine had been examined and nothing pathological had been found in it. Dr. Delphey had first given about a drachm of Squibb's chloroform with an Esmarch inhaler, and had just substituted ether for the chloroform when the patient had suddenly ceased breathing. Artificial respiration had been immediately resorted to and continued for half an hour, or until the heart had ceased to beat, but they had failed to resuscitate the man. The deputy coroner, who had made the autopsy, had reported that he had found pulmonary œdema, pachymeningitis, and incipient disease of the kidneys. Special emphasis was laid on the fact that the judge, in his charge to the jury, had instructed them to disregard the fact that the family of the deceased had objected to the anæsthetic, and stated that they had had no legal right to interfere, especially as the patient had been competent at the time to decide the matter for himself. The jury had rendered a verdict for the defense.

Dr. E. D. FERGUSON called attention to the fact that it had been held in the courts of Pennsylvania that the physicians

present at an operation, not as assistants but as simple spectators, could be made co-defendants and parties to such a suit.

Dr. COLVIN said the drawing up of a contract previous to operation would be no bar to a subsequent suit for malpractice, and that consequently he could see no advantage in entering into such a contract.

Dr. DELPHEY called attention to the fact that the judge in his charge had said that if a physician gave any medicine to a patient contrary to that person's wish, the physician was a trespassor, and could be held as such for any serious results that might ensue from the administration of the medicine.

Interesting Cases from General Practice, Illustrating Special Points of Treatment was the title of a paper by Dr. CHARLES E. LOCKWOOD, of New York County (to be published).

Typhlenteritis versus Appendicitis.—Dr. J. W. S. GOULEY, of New York County, read a paper with this title. (See page 521.)

Some Interesting Cases of Appendicitis.—Dr. JOSEPH D. BRYANT, of New York County, read a paper with this title in which he described the main features of four cases of recurring appendicitis in which he had successfully operated. They illustrated the varying conditions likely to be met with in these cases at operation, often without any clinical symptoms indicating the severity of the lesions. He said that, whereas formerly the majority of cases of appendicitis to which the surgeon was called had been suppurative, now practice had changed so much that the larger number of such cases were non-suppurative.

Dr. F. W. GOODALL, of Vermont, said that quite recently he had been practicing palpation of the vermiform appendix, according to the method recommended by Dr. Edebohls, of New York, and he had found that it was not difficult to feel the appendix. On making deep pressure the external iliac artery could readily be located, and then by following this vessel outward the appendix was easily detected by the examining finger as a round or flattened band.

Dr. J. G. TRUAX, of New York County, queried whether, if the cases reported in the paper had been properly treated in the primary attack, they would have required operation subsequently. His own experience had led him to believe that with proper treatment of the first attack there would rarely be another attack. What he meant by "proper" treatment was keeping the patient in bed on a milk diet, and with an ice bag over the ileo-cæcal region as long as there was any induration of the part. Although the patient was allowed to get up after this, the milk diet should be continued for two or three weeks, and then a farinaceous diet employed for five or six weeks more. When the attacks became quite frequent, it was best to operate in the interval.

Dr. H. O. MARCY, of Boston, cited his last operative case as an example of the many doubtful cases met with. Here, although his friend and consultant, Dr. Shattuck, had almost been inclined to doubt even the existence of an appendicitis on account of the mild symptoms, it had become necessary to operate two days later on account of the development of urgent symptoms. The appendix had been found completely necrotic. After an extensive experience with this disease he could frankly say that he had never had occasion to regret having operated, while he had often felt deeply sorry that he had not operated. One or two per cent. covered all the risks of operative measures where the operation was done sufficiently early. The fatal cases were those in which the appendix had already ruptured and had scattered the bacilli into the abdominal cavity, and under such circumstances an operation only served to bring surgery and the surgeon into disrepute.

Dr. FERGUSON said it was easy to understand how surgeons like Dr. Bryant and Dr. Marcy would see such a large proportion of cases demanding immediate operation, and also how, on the other hand, others, like himself, should see so many patients recover without surgical interference. He felt sure that, if all the mild cases were operated on and the statistics honestly collected, there would be quite a percentage of mortality. He saw on an average about twenty cases of well-defined appendicitis each year, and out of this number about four would come to operation. All the patients would get well and the vast majority would remain well.

Dr. BRYANT said that undoubtedly from sixty to eighty per cent. of patients would recover from the primary attack without operation. Secondary attacks occurred in from eleven to seventeen per cent. of the cases. In an ordinary case of primary appendicitis he would wait until such time as the fever indicated the possibility of suppuration before operating—probably thirty-six or forty-eight hours. As one never could tell before the operation whether or not the appendix was dangerously near rupture in a secondary attack, he always advised operation in these cases. He had usually been unable to detect the appendix on palpation, and he considered this method of examination dangerous on account of the liability of causing rupture of a gangrenous appendix.

Recent Studies on Diphtheria and Pseudo-diphtheria.

Dr. W. H. PARK, of New York County, read a paper with this title. He read the explanatory circular that had been issued by the board of health, and commented on the results of eight thousand cases observed by the board. It had been found that where the membrane was not easily accessible, as in the larynx, the bacteriological diagnosis could not always be made. It had been found that the diphtheria bacilli usually persisted in the throat for at least seven days after the disappearance of the membrane. Virulent bacilli had been known to exist in the throats of healthy persons who had been attending cases of diphtheria, so that it was evident that such persons could convey the disease to others without perhaps themselves becoming ill. For this reason it had now become the practice of the health authorities to make cultures from the throats of the attendants on diphtheria patients as well as from those of the patients themselves. From an examination of four hundred and fifty cases of pseudo-diphtheria in which isolation had not been practiced, it had been found that no undesirable results had followed the neglect of this precaution. About ten per cent. of the cases broke out at the same time. The prevalence of pseudo-diphtheria, unlike that of true diphtheria, depended largely on the season of the year. It would seem that if those exposed to pseudo-diphtheria could keep their throats in a healthy condition they had little to fear from the disease. Experiments had been made at the Willard Parker Hospital to determine the comparative value of various forms of local treatment. The patients had been divided into three classes—one treated with irrigations of mercury bichloride (1 to 4,000), another treated with peroxide of hydrogen, and a third treated with lukewarm water containing a drachm of common salt to the pint. After treating eighty cases it had been decided that those that had received the irrigations of warm salt solution had done fully as well as the others, and that those treated with the peroxide of hydrogen had yielded the poorest results. They had not found that sublimations of calomel had proved antiseptic in the nasal passages. In concluding his paper, the author referred to the antitoxine treatment of diphtheria, and said that where sufficient doses had been used, all observers had noticed a very decided improvement in all the symptoms, particularly the effect in checking or arresting the growth of the membrane. So far as this treatment had been carried out at

the Willard Parker Hospital, it had abundantly confirmed all the allegations made for it by foreign observers. Many patients that appeared on admission to be almost moribund had improved under this treatment with remarkable promptness. It also seemed to be an almost certain preventive when administered to persons exposed to diphtheria, though this immunity only lasted for a few weeks.

Diphtheria.—Dr. JOHN CRONYN, of Erie County, followed with a paper thus entitled, in which he compared diphtheria to the exanthemata, especially as regarded its period of incubation, and concluded that this was an indication that it was originally a constitutional infection. Frequently there would be a development of membrane in the larynx and bronchi shortly after it had disappeared from the fauces, showing that the infection already existed in the blood. It was not uncommon to see only slight local disturbance with such violent constitutional infection as to give rise to albuminuria, threatened heart failure, paralysis, etc. The writer cited the case of a medical man who was taken ill with what was at first supposed to be pneumonia. He then had a stomatitis, which quickly spread to the nose and eyes, and was rapidly followed by retention of urine and the appearance of diphtheritic membrane on all the mucous membranes—those of the mouth, throat, urethra, and rectum. In conclusion, the author expressed the belief that the disease might be local, but was always constitutional.

Dr. HERMANN M. BIGGS, of New York County, said he thought the work of the New York Health Department had shown positively that bacteriological examination of diphtheria was absolutely essential to its intelligent sanitary surveillance. It was now known that it was not necessary for the existence of true diphtheria to have an abundant exudation of false membrane in the throat, nares, or larynx; there might be virulent diphtheritic bacilli present without the usual membranous exudation. On the other hand, there were many cases in which there was an abundant deposit of false membrane, and yet the bacteriological examination showed the disease not to be true diphtheria.

Referring to the antitoxine treatment, the speaker said he had had unusual opportunities in Berlin during the past summer to follow this work in the Institute for Infectious Diseases—an institution founded by the German Government for original research and having a staff of specialists of international reputation. These eminent men were unanimous in the opinion that the treatment had passed beyond the experimental stage. In their last series of tracheotomies they had had seventy-five per cent of recoveries. Diphtheria was a disease in which there was always first a local development of micro-organisms. The antitoxine treatment was a perfectly logical scheme, the result of a number of years of careful observation. It had been found that the dose must be graduated according to the weight, age, and size of the patient, as well as bear a certain relation to the virulence of the disease.

Dr. CRONYN emphasized the statement that necrosis of the mucous membrane must take place before the diphtheritic exudate could make itself manifest.

The Technique of the Cæsarean Section.—Dr. A. PALMER DUDLEY, of New York County, read a paper on this subject, and exhibited three patients who had been subjected to the operation. His method was to make an incision in the median line, not more than six inches long, through which he introduced the hand and forearm and swept about the uterus to determine the presence or absence of adhesions. If no adhesions were found, a loop of elastic cord grasped between the forefinger and middle finger was carried over the fundus of the uterus and down to the *cul-de-sac*, and the ends were given to an assistant, who made traction upon them. This prevented the escape of blood

and amniotic fluid into the abdominal cavity, and cut off the blood supply sufficiently to prevent hæmorrhage when the uterus was incised, yet without interfering with the fœtal circulation. The uterus was then quickly incised along the anterior surface without reference to the position of the placenta, while a second assistant made firm pressure on the abdominal wall so as to hold the upper portion of the uterus against the abdominal incision. As the child was being extracted he gradually pressed the uterus out of the abdomen through the incision. All these manipulations were done under constant irrigation with hot boiled water. The umbilical cord was quickly clamped with two forceps and cut. Meanwhile the assistant had pressed the uterus through the incision, and had surrounded it with hot aseptic towels. During the detachment of the placenta the uterine cavity was irrigated with a 1-to-5,000 bichloride solution. The uterus now quickly contracted, and the uterine incision was closed with three rows of continuous catgut suture. The first row began at the inner edge of the upper angle of the incision and extended to the lower angle; the second row included the muscular layers and uterine sinuses; the third row closed the peritoneal layer. The elastic cord was now removed, and, if there was oozing along the line of sutures, this was controlled with hot sponges. The uterus was then irrigated with boiled water, dried, and replaced. The pelvic cavity was then irrigated and sponged dry, after which the abdominal incision was closed with three rows of suture and without drainage from above.

Hysterectomy for Uterine Fibroma by Baer's Method, with a Report of Nine Successful Cases.—Dr. JOSEPH TABER JOHNSON, of Washington, read a paper with this title. He had found that convalescence in these nine cases had been very rapid and easy. Other similar methods required more time for their performance than Baer's method, although the latter took more time than total extirpation. We could not, however, safely discard the Bantock-Price method, which was useful in many cases. The removal of the uterus down to the internal os seemed to him likely to be the ideal operation of the future.

Hysterectomy in Pyosalpinx.—Dr. W. R. PRYOR, of New York County, read a paper on this subject, and exhibited a portable operating table suitable for use with the Trendelenburg posture. He said that in at least one third of the cases in which he had removed suppurating tubes without removing the uterus the symptoms had persisted. When it was necessary to bring on an artificial menopause, he maintained that the woman was better without the uterus. It should not be forgotten that in many of these cases the original source of infection was the uterus, and also that in about twenty per cent. of the cases there was tubercular disease of the uterus. There was not so much shock attendant upon this radical operation as upon leaving the mutilated organ. It also took less time to remove the uterus than to dissect out pus foci.

Dr. MARCY said that in cases where the tumor was so large as to preclude the formation of a proper pedicle Baer's method was peculiarly advantageous. He also favored the removal of the uterus, as advocated by Dr. Pryor. Incidentally he would like to call attention to the possible danger of the Trendelenburg posture. He had observed two deaths attributable to it.

Dr. PRYOR said he also knew of two deaths from this cause. The tendency to secondary hæmorrhage should not cause the surgeon to abandon this posture, as the hæmorrhage could readily be controlled.

Dr. CRONYN said he was sure he had seen death result from the use of the Trendelenburg posture when it was first introduced.

Dr. JOHNSON objected to the technique of Dr. Dudley's Cæsarean section on the ground that the less the manipulation

and the shorter the operation, the better the patient's chance. If the uterus could be removed readily, as suggested by Dr. Pryor in cases of pyosalpinx, without unduly prolonging the operation, he felt it would be desirable.

Dr. J. E. JANVRIN, of New York County, maintained that Baer's method was an unimportant modification of the Goffe and Dudley operation. He favored the removal of the uterus in pyosalpinx cases only when there was evidence that the uterus was diseased, or where it had been injured during the removal of the tubes.

The Anatomy and Surgical Treatment of Inguinal Hernia in the Male.—Dr. MARCY made some remarks on this subject, and illustrated them freely with stereopticon views. He considered it of vital importance to restore the obliquity of the inguinal canal if one would prevent the recurrence of the hernia.

(To be continued.)

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Meeting of September 26, 1894.

Prophylaxis in Churches needed by the Adoption of Individual Communion Chalice or Cups.—This was the title of a paper by Dr. HOWARD S. ANDERS, who remarked that it might seem like an invasion of the sacredness of religion for sanitary science to prescribe and recommend certain modifications in the administration of a church ordinance which had had the sanction of general usage for centuries among the most intelligent Christian congregations and their pastors. Be this as it might, it was not for sanitarians to leave a stone unturned in their quest for facts and principles, for ways and means by which humanity might be led to suffer less from disease and live healthier, stronger, happier, and longer. This applied intrinsically to the welfare of those cherished by and cherishing the higher, spiritual life as well as the secular.

Seemingly an unwarranted intrusion, the change urged in this paper was, nevertheless, actually an innovation; and more, it was—as he hoped to prove—a sanitary improvement of a sublime Christian ordinance, and not a sacrilegious though scientific proposition. When it was recollected that more than ten millions of people of a nominally Christian nation signified their faith many times a year by participating in a service at once beautiful, solemn, symbolic, but, by reason of certain hazardous conditions in its practice, unhygienic, too, the scope and magnitude of this topic might readily be conceived of. It was rather remarkable that the possible and occasionally probable transmission of disease by the use of the common communion chalice had not been ventilated publicly until quite recently. But the pace had been set, and the wholesome movement was spreading throughout the United States with rapid strides.

According to its present status, his theme divided itself naturally into three parts—namely, the historical, the rational or explanatory, and the practical and suggestive.

It was not unlikely that the use of individual communion cups for the wine dated back to the time when Christ himself had instituted the communion for his disciples and subsequent followers. The Oriental drinking customs at that era had likewise been unwittingly hygienic in this respect. These statements were in accord with some of the best biblical historians, exegetists, and critics, and he had been assured by several learned and progressive divines that there was absolutely no scriptural objection whatever to a reversion to the individual communion chalices, particularly as cleanliness (which was next to godliness) and the conservation of health would thus be promoted. The speaker referred here to the classic painting

of The Lord's Supper, by Da Vinci, who represented each disciple with his own cup. How long or to what extent this ordinance had been practiced as instituted it was difficult to say and irrelevant to the purpose and province of his paper. Suffice it to note that in most Protestant churches of to-day the habit at a communion service was for the communicants to partake of the wine from but one or several chalices respectively. Since it often happened that hundreds of persons received the wine from the same cup, and since the virus of certain infectious diseases might be present in the oral secretions of some, their transfer to others by this contact at the rim of the cup was quite possible.

This was the condition which faced the sanitarian, the problem which called for solution. Fortunately, the latter was easy, and its results reasonably efficacious. The questions which offered themselves embraced several aspects in connection with the expected prophylaxis, and might be expressed as follows: Was there a real danger of the transmission of disease from mouth to mouth in the observance of communion by the use of a common cup or cups? If so, what diseases, and of what gravity were they? Had any cases of sickness thus arisen? Would an individual-cup system obviate these dangers? Would its adoption detract from the impressiveness of the spiritual intent of the service? In short, was it at once practicable and practical?

If one might be permitted to estimate rightly the decision of recent events, said Dr. Anders, these questions were now virtually answered by several churches and hundreds of worshippers. Though the actual substitution of what had been fitly termed the individual communion cup for the common one was only in its inception, the appreciation of the idea was more advanced, as recent newspaper agitation showed.

But to Dr. Charles Forbes, of Rochester, N. Y., we were indebted for having first investigated scientifically the dangers lurking in the communion chalice, detected them, and then designed suitable means of obviating them. His report to the Rochester Pathological Society had been adopted, with resolutions recommending most strongly to the various churches the modification to the individual cups.

This brought us, then, to the fundamental argument for the proposed change.

Reasoning by induction, the inference was logical that if certain microbes were discovered in the wine taken from a common chalice used at communion, and those microbes were known to be pathogenic, then such wine so used was a menace to the health of the participants, provided, of course, that the wine had been uncontaminated before it had been passed to the members. Evidence, both bacteriological and clinical, was not wanting to verify the premises.

Dr. Forbes had found in the dregs of a common cup contamination from two sources—viz., the mouth and the clothing. From the former, epithelial cells, bacillar spores and various bacteria, and mucus; from the latter, fibrous material. Control experiments had shown the unused wine to be practically sterile. He had referred, also, as illustration by analogy, to an epidemic of diphtheria which had occurred recently among twenty-four families of Rochester, the origin of which had been traced clearly to a common drinking cup which all of the patients had used. Loeffler's bacilli had been found in great numbers in the wipings from the cup's rim. Again, a fatal epidemic of the same disease in San José, Cal., had been traced to a common communion chalice contaminated by a man sick with the malady in its early stage.

About June 1st of the present year, in the laboratory of the Medico-chirurgical Hospital, the speaker had completed, with the kind aid of Dr. C. L. Furbush, a bacteriological examination

of the dregs from an ordinary communion chalice used by many communicants at a service in the Fourth Baptist Church of Philadelphia. Five slides had been prepared from agar-agar cultures, and the specimens stained after the Ziehl-Neelson method, and in two preparations several tubercle bacilli had been found. Other preparations made from sterile bouillon media had revealed the pus staphylococci. Microscopical examination of the dregs had shown numerous pus cells and an abundance of pavement epithelium, along with the ovoid, purplish cells of the grape.

But if this was one instance, might there not have been hundreds in the course of time when health and life had been jeopardized, interrupted, and sacrificed in apparently inexplicable fashion? Innocent and religious might have been these sacrifices in the past—in the black background of the historical panorama where had stalked the figures of cruel fanaticism, bigotry, ignorance, and superstition. But was it religious heroism to suffer needlessly the martyrdom of bacillar attacks while we were strong in prophylactic defense as well as able in knowledge? He asked, was it reasonable, was it safe, was it right or God-forbidden to continue the administration of an ordinance which exposed so many to the possibilities of infection? Furthermore, while it was manifestly difficult to prove the origin of many cases of sickness from a common communion chalice, and while positive proof of but one case would be sufficient reason for systematic prophylaxis and the use of the individual chalice, yet, even this was unnecessary to justify the change in the light of our present knowledge.

The second part of the argument was then naturally in order, and need not be elaborate. That there were certain underlying principles of hygiene applicable to this subject, and all-sufficient for the result desired—namely, the prevention of the transmission of disease through the medium of a common chalice—we were all well aware. Cogent reasons for prophylaxis in churches regarding this ordinance might be deduced by analogy.

Truth was truth everywhere, whether in the natural or in the spiritual world. It was stable and harmonious. The truths of hygiene were of incomparable value to the welfare of all; he who heeded them not suffered. There were many truths yet to be discovered and applied, and many just growing into recognition and pleading for utilization for humanity's sake. The latter embraced this need of prophylaxis in the use of a common communion cup.

We knew that certain pathogenic micro-organisms and their corresponding viruses or ptomaines were communicable and inoculable, from mouth to mouth, by direct contact, or immediately, as with a common drinking vessel; that the various habits of life and customs of society, laxity in prudence and precaution, and what not, were insidious auxiliaries in the matter of infection; and that the practice of sanitary principles erected a hidden but potent barrier between the besieging microphytes and man, the besieged. The true spirit in churches could not but lead it to adjust itself in the observance of a sacred ordinance so that a helpful truth of hygiene should not be violated, but contribute indirectly to the good being wrought for the higher nature of man, by keeping the mind sound in a sound body. Indeed, it would seem to be wrong and unchristian not to make use of knowledge which in any way aided in preventing or alleviating human suffering.

The fundamental principle in this movement, then, was the prevention of disease and that for which we should contend most earnestly: a principle of medical science as fundamental as the "*Cogito, ergo sum*" of the philosophers, or as the faith of perfect trust and obedience of one of God's true worshippers.

That the preventability of a contagious disease was a fact,

was as obvious as its contagiousness. While the more contagious diseases were becoming less prevalent on account of the alarm which led to more intelligent and stringent co-operative measures of private and public quarantine, there was great danger that the less communicable affections might be dealt with too lightly, because of the practical neglect of the common, everyday modes of transmission. It was on this account, probably, that such diseases as tuberculosis and typhoid fever were so prevalent, and that they increased the mortality rate so much. Besides the two diseases mentioned, among others which might be placed in the category of communicability from the sick to the well through the medium of a general communion chalice were the following: Syphilis, diphtheria and croup, scarlatina, whooping-cough, follicular amygdalitis, and perhaps measles and pneumonia. Dentists urged strongly the necessity of avoiding a common cup, and thereby possible infection from alveolar abscesses, diseased gums, and the nasty malady known as Riggs's disease, or pyorrhœa alveolaris.

Who would say that perhaps many an innocent person had not acquired disease from a common communion chalice, or that the dangers residing in its use were sensational and imaginary, and not real, grave, and well-nigh universal in Christian communities? Was it not clearly "illogical to pass a cup from mouth to mouth in a religious ceremony when the same practice was justly condemned in our homes and in other public assemblages?"

From little less than axiomatic sanitary principles, then, the deduction was made that the substitution of individual, separate cups was urgently needed. These could be kept clean and free from the possible disease contamination by the innocent or careless. They were sanitary, safe, and practicable, and, moreover, as before intimated, they had the sanction of scriptural precedent, therefore were not justly provocative of irreverence or lack of dignity, solemn impressiveness, or deep devotion.

Lastly, would the adoption of an individual-cup system be practical as well as practicable? Recent experience answered this question in the affirmative. The adoption of anything which released man from the dangers of disease was practicable; the progress of time, the development of ingenuity, and an enterprising, persistent industriousness, combined to look after its practical accomplishment.

If there had been thirteen cups at the Lord's Supper, why should there not be two hundred, or five hundred, or a thousand for the needs of any congregation? The communion ordinance as administered in the Rochester churches by individual cups was entirely satisfactory, and the wonder was expressed that the change had not been effected before. The celebration of the service was expedited and conducted with a unity and harmony of action and impressiveness of spirit at once beautiful and elevating. Dr. Anders stated that between the services the cups were sterilized in wire baskets, and kept in tight closets on rack or tray-formed holders provided with lids to exclude any dust.

Philadelphia arrogated to herself the honor of being the medical center of the United States, and justly too, he thought, with all deference to other cities. It behooved the representative medical society of Philadelphia to take a front place in furthering a sanitary movement which was bound to go forward with an increased impetus of beneficence by reason of its sanction and recommendation of this individual chalice method of administering the communion ceremony in all the various churches now using the common chalices. Prompt action to that end would, he was sure, be termed by all but an unfit minority a worthy and lofty expression of science and sympathy conjoined.

Public attention and interest would also be aroused more

energetically and widely; and after intelligent, unbiased, and dispassionate consideration individual chalices would be adopted throughout the country with proportionate readiness, and with their adoption into practice another modest quatum might be added to our hopes and efforts in attaining a high standard of public health and an ever-increasing longevity.

The following preamble and resolutions were introduced:

Whereas, The present use of common communion chalices or cups in churches exposes the communicants to the positive danger of acquiring certain contagious diseases, and is therefore a menace to the public health; be it

Resolved, That the Philadelphia County Medical Society hereby recommends the adoption of an individual-cup method or system of administering the communion wine in all churches, of whatever denomination or sect, where the common communion cup is now in use; and

Resolved, That this society believes from undoubted evidence that an individual chalice or cup system would be a clean and safe and reliable means of preventing the liability to the spread of contagious disease from such a source as may reside in the ordinary chalice.

Dr. LOUIS J. LAUTENBACH mentioned a case of syphilitic retinal hæmorrhage in a priest, who alleged that he had contracted a sore in the mouth in the manner indicated by Dr. Anders. Another similar case, concerning the origin of which the history was more clear, had occurred in his practice.

Dr. WILLIAM S. STEWART said he understood that in the Catholic Church the congregation did not drink the wine, but that they ate the wafer and the priest drank the wine.

Dr. JOHN C. DA COSTA sympathized with Dr. Anders, and indorsed much of what he had said, but questioned whether his ideas were practicable. With regard to a few of the leading religious bodies, in the Roman Catholic Church he was told that the priest alone partook of the wine; if so, there was no risk of contagion and no need of more than one cup. In the Presbyterian Church the people remained in their seats, and the four elders handed around the bread and wine. Now imagine, he said, a thousand partaking—and a separate glass for each; let each glass occupy only two square inches of space, and a table of twenty-eight square feet would be needed to hold the glasses alone; or with a Baptist Church in Louisville that he knew of, with a communion of twenty-five hundred, a table space of sixty-nine square feet and a half would be needed.

In the Episcopal Church the people knelt at the chancel rail, and the bread and wine were handed to the people by the minister. Imagine not a thousand, but two hundred and fifty separate glasses being collected, and drained for the minister to drink what remains, for the rubric commanded that "the minister and other communicants shall, after the blessing, reverently eat and drink the same" (bread and wine). It would turn a solemn ceremony into a farce.

Next, as to the risk of contagion, we might take the diseases in the order the doctor had mentioned. A person with syphilis was scarcely one who would go to communion. One with diphtheria would be too sick, as would also one with amygdalitis or typhoid fever. Pneumonia would scarcely be conveyed. If the doctor thought only of unfermented grape juice, there might be some risk, but with wine such as was ordinarily used, there was very little, for the alcohol in the wine was in itself a good germicide.

Dr. THOMAS J. MAYS said that he was in sympathy with some of Dr. Anders's suggestions. He could well see why such diseases as typhoid and typhus fever, diphtheria, syphilis, etc., might be so transmitted, but he did not believe that phthisis could be communicated in this manner. At least, before the assertions of the reader could be established, he ought to show

some relation between his conclusions and his premises—that those who partook of the communion cup were more liable to phthisis than those who did not. A great deal of loose thinking was being done on this subject. He did not see why, in addition to their natural affliction, this class of sufferers should be compelled to bear the cross of a new and artificial opprobrium. They had already suffered enough. He admitted that facts to prove the correctness or the falsity of the position of the reader of this paper were not easy to obtain, but as possible evidence that it was not correct, he stated that it was well to remember that phthisis was more prevalent among those of our Indians who had just come in contact with our frontier civilization than it was among those who had lived a more civilized life for many years in the interior of the States of Michigan, Wisconsin, and New York. The latter having been under the influence of missionaries and the Church, and having observed the rites of the same, they should be more liable to this disease than the former, if the communion cup produced any special havoc in this direction, provided, of course, that other conditions were alike. He hoped that Dr. Anders held statistics by which he could prove the accuracy of his contention in this respect.

Dr. JOHN AULDE said that he had long been convinced that the use of the common communion cup was productive of disease. Dr. Probst, secretary of the Ohio State Board of Health, about two years ago had delivered an address to a body of clergymen, calling their attention to the unsanitary features of this practice, and the investigation at Rochester, N. Y., seemed to have established the danger of the cup. If the one disease, diphtheria, could be communicated in this way, it was enough to condemn the practice without further discussion.

(To be concluded.)

Miscellany.

The Muscles of the External Ear.—The *Dublin Journal of Medical Science* for October publishes an article on this subject by Dr. Ambrose Birmingham, in which the chief points sought to be established are as follows: 1. That the tendinous band which lies on the superior curved line, and is said to represent the transversus nuchæ, gives origin to the middle portion of the occipitalis and to the upper division of the retrahens auriculam. 2. That the occipitalis is made up of three parts—an internal, which arises from the curved line, a middle, from the transversus-nuchæ tendon, and an outer, from the mastoid portion of the temporal bone; and that the outermost fibers of the muscle are frequently connected to the ear, while the next fibers send their aponeurosis forward under the attollens. 3. That the retrahens, in its perfect condition, is composed of an upper division which arises from the mastoid in connection with the outer part of the occipitalis and a lower which springs from the transversus-nuchæ tendon. 4. That the attollens arises from the outer surface, not from the margin of the epicranial aponeurosis, and that it is inserted partly into the outer, partly into the deep surface of the pinna. 5. That the attrahens auriculam is a perfectly distinct and separate muscle, unconnected with the attollens; that it lies beneath the temporal artery at a deeper level than that muscle, and that a connection can occasionally be traced between it and the upper part of the frontalis. 6. That a parotido-auricularis is present in a fair proportion of cases. 7. That the helix major is an intrinsic muscle of the ear, connected above with the attollens.

8. That there is possibly a connection between the retrahens on the one hand and the obliquus and the transversus on the other.

9. That there is a deep fascia in the scalp between the epicranial aponeurosis and the superficial fascia.

In seeking the true connection of the retrahens or auricularis posterior, the attollens or auricularis superior, and the attrahens or auricularis, the author has found it necessary to look carefully into the arrangement of the occipitalis, the transversus nuchæ, and, in part, the frontalis. He has also noted in each ear examined the condition of the intrinsic muscles of the pinna, together with the presence of supernumerary muscles.

Regarding the absence of muscles, in every case examined there was a distinct, separate, and well-defined retrahens, attollens, and attrahens. There was occasionally found a parotido-auricularis; this muscle was present three times in twelve specimens. Another supernumerary muscle which the author met with a few times is made up of short fibers crossing the horizontal fissure which separates the lower part of the tragus from the concha. The helix major and the tragus have always been present and distinctly muscular. Out of twelve ears the helix minor could not be recognized three times, while the obliquus the transversus, and the antitragicus were not represented by muscular fibers once. In the case of the three last the muscles were represented by fibrous tissue, but no distinct trace of the helix minor, muscular or fibrous, could be found in the three ears in which it was noted as absent. In taking up the various muscles the author calls attention to special points of interest or to details in which he has found the condition to differ from that described in the usual accounts.

The retrahens auriculæ or auricularis posterior.—This muscle is represented by a number of slips—distinctly fleshy slips—from one to five. Although the author has seen it occasionally represented by a single muscular bundle, in all cases these bundles were arranged in two sets, forming two main divisions of the muscle—an upper and shorter connected with the outer portion of the occipitalis, and a lower and longer connected with the transversus nuchæ. The former of these always arises in very close connection with the outermost part of the occipitalis, springing from the bone immediately below, just external to, or partly under cover of, the outer margin of the occipitalis. On seeing this region carefully dissected, and observing the almost complete separation of the mastoid portion of the occipitalis from the rest of that muscle, its trend toward, and its frequent connection with, the ear, also the close relation of the upper part of the retrahens to this portion of the occipitalis, it is difficult, says Dr. Birmingham, to resist the conclusion that the upper part of the retrahens is produced by a slipping or rotating downward of the outermost part of the occipitalis. The lower division of the retrahens will be found to be perfectly continuous with the transversus nuchæ through the medium of a distinct bundle or bundles of tendinous fibers which cross and are closely bound to the sterno-cleido-mastoid. As the muscular slips are followed back, at first sight they seem to be attached to the bone, like the upper part of the muscle; however, on removing the surrounding connective tissue, it will be found that there is no actual connection to the bone, the muscular fibers passing continuously into tendinous bands which are bound tightly to the mastoid process and the tendon of the sterno-cleido-mastoid, but which can be dissected off these parts and followed back to the transversus nuchæ, so that there can be little doubt that this inferior division of the retrahens is the anterior end of the transversus nuchæ. Regarding the insertion of the retrahens, the greater part of the muscle is inserted close together on the deep surface of the concha nearly opposite the crus of the helix; in a considerable number of cases, however, where the muscle was made up of several slips, the

lowest of these, as it approached the pinna, separated from the others and gained an insertion into the concha a third of an inch lower down. Another point of interest is that the author thought he found a slight connection between the highest bundle of the retrahens and the obliquus. This would point to the retrahens as the original source of the obliquus. A similar equivocal connection between the lower part of the retrahens and the transversus was observed.

The attollens auriculæ or auricularis superior.—It is universally taught, says Dr. Birmingham, that the attollens is in the same plane as the epicranial aponeurosis—in fact, it is usually looked upon as the lateral portion of that sheet which is represented by the frontalis in front, the occipitalis behind, and the epicranial aponeurosis between. Further, the attollens is always described as a thin, fan-shaped muscle which arises from the lateral margin of the epicranial aponeurosis. This certainly is the connection which seems to exist between the two structures, even on careful dissection; but occasionally one meets with a head in which the development of the parts, particularly the occipitalis, is specially favorable. The insertion of the attollens as usually given is very vague and inaccurate. The full insertion is as follows: The anterior fibers are inserted into the outer surface of the helix and into the anterior margin of that structure; the posterior half of the muscle is inserted into the deep surface of the fossa triangularis of the pinna, which on this surface is represented by a convexity. Between the two insertions is a part in which the muscular fibers are few or absent, their place being taken by connective tissue, when the muscle near its insertion will be divided into two parts—a condition described as normal by Henle. The portion of the attollens inserted into the helix is attached along a line beginning about the middle of the outer surface of the helix, a little above the level of its spine; from this the attachment runs nearly vertically upward and turns over the anterior margin, about at the level of the upper part of the fossa triangularis, while the posterior fibers of the muscle gain insertion into the deep surface of the fossa triangularis. Sometimes a few of the most anterior fibers are inserted at a distance from the rest, close to or at the base of the spine of the helix. Debierre, in his *Anatomy*, says the author, refers to the difficulty of making out with certainty the attrahens auriculæ, which has usually been described as continuous with the anterior part of the attollens, but it will be found that the attrahens is always separated from the attollens by the temporal vein. It is true, as a rule, that the anterior part of the attollens is more or less distinctly separated from the rest of the muscle by the posterior branch of the superficial temporal vein, which comes through and becomes superficial here, while the corresponding artery runs up under the anterior part of the attollens. Besides, this small division of the attollens is generally inserted at some little distance from the rest of the muscle, approaching nearer to and sometimes reaching the base of the spine of the helix, while at its origin it is shorter than the fibers of the attollens, not reaching so far up on the side of the head. This division of the attollens just described does, especially in some subjects, look like an independent muscle, and, says the author, one can well understand that it might be dissected and described as the attrahens.

The attrahens auriculæ or auricularis anterior.—The want of a proper account of this muscle is felt most keenly by dissectors. The universal description is that the attrahens will be found quite superficially in the superficial fascia at the anterior border of the attollens, with which muscle it is frequently continuous. This description, says the author, is inaccurate, as the attrahens does not lie superficially; it is not on the same plane as the attollens, but at a much deeper level; it never is continuous with that muscle, but may be partly overlapped by it;

and it is always separated by a considerable interval in depth from the attollens. The author describes the attrahens as a small, flat muscle of a distinct red color and of a narrow fan shape, which will be found lying beneath the temporal artery in front of the ear, and a short distance above the zygoma, running in a line from the spine of the helix to the frontal eminence. It is most easily exposed by drawing forward the temporal artery and cutting through the underlying fascia in the line of the muscle. It seems to arise by a curved margin from a layer of fascia which lies over the temporal aponeurosis about three quarters of an inch in front of the ear, and here its muscular fibers end abruptly; but, in certain cases, the muscle may be traced through the medium of scattered tendinous and thin muscular fibers into connection with the upper and outer part of the frontalis. The insertion is into the deep surface of the spine of the helix and into the concha behind this, running backward above the meatus for a variable distance. The insertion into the concha is the chief attachment. Probably the most notable point about the attrahens as an ear muscle is the considerable depth at which it lies.

The parotido-auricularis.—This is an occasional muscle which is slightly developed, being always pale and extremely thin. It springs from the fascia over the parotid gland, and, running backward and upward, gains insertion into the lower part of the deep surface of the concha, in about the line of the anterior border of the antitragicus.

The helix major.—The author does not know why this muscle is described as an intrinsic muscle of the ear. He has never seen it confined to the ear alone. One end certainly is distinctly fixed to the ear; the other passes to the side of the head into connection with the attollens. When carefully dissected, it looks much more like a degenerated extrinsic muscle or a derivative of the attollens than an intrinsic muscle of the pinna. Some few fibers may end in the fascia covering the helix where it turns backward, but this is rarely a marked attachment.

The helix minor.—The frequent absence of this muscle is easily associated with its distinctly rudimentary character in all cases. The author simply calls attention to the fact that it usually bridges over a hollow or undulation in the cartilage on which it lies, as in the case of the antitragicus.

The tragus.—The author has always found this muscle present, although sometimes very badly developed. The slip was present only twice in twelve ears. In one case almost all the fibers of the muscle arose fanlike from a little tendon which was attached to a small spine situated at the lower and back part of the tragus.

The antitragicus.—In one case this muscle was not represented by muscular fibers, its place being taken by ill-defined tendinous fibers. It will always be found bridging over a distinct hollow or undulation in the underlying cartilage of the antitragus. The author has never seen an ear in which this muscle was distinctly attached to the tail of the helix. Its two extremities are connected entirely to the antitragus, never crossing the fissure between the latter and the caudate process of the helix.

The transversus.—This muscle, which is made up of parallel or slightly radiating fibers, forms a thin, broad sheet which is attached to the prominent back of the pinna, along what may be described as the junction of the bottom and posterior wall of the concha. It runs obliquely backward and upward and gains insertion, not so distinctly into the ridge produced on this surface by the scaphoid fossa, but rather into the bottom and posterior border of the groove which thus represents the antihelix.

The obliquus.—Nothing special was noted about this muscle,

except its constancy. In several books it is described as an occasional muscle. The author found it absent only once in twelve ears.

In addition to the above-mentioned muscles, says Dr. Birmingham, a small muscle made up of short fibers crossing the fissure which runs nearly horizontally between the lower margin of the tragus and the lower end of the concha was found. If this is identified, he says, as the *dilatator conchæ* of Theile, he thinks that the muscle has been badly named.

Catheterism of the Fallopian Tubes.—In the October number of the *American Journal of Obstetrics* there is an article on this subject by Dr. Llewellyn Eliot, of Washington, in which he remarks that the possibility of catheterism of the Fallopian tubes has been denied and ridiculed time after time, and that it may appear foolhardy for any one to hint at such a possibility being an established fact. The propositions he desires to discuss are: 1. It is possible to catheterize the Fallopian tubes. 2. The possibility being established, the attempt to treat cases of diseased tubes by applications made directly to their surfaces is justifiable. After referring to the tubes and their anatomy, Dr. Eliot quotes from other authors to sustain his first proposition. Fritsch, he says, writes as follows upon the use of the sound in uterine examination: "Two noteworthy circumstances that may occur during sounding may be mentioned: If the uterine opening of the tube is wide, and the uterus is placed somewhat obliquely, so that the knob of the sound is directed to the tubal ostium, the sound may glide into the tube and pass through it. Although these cases are rare, they are still possible and authenticated. . . . If, in one of these extremely rare cases, the syringe should enter the tube and injection be practiced with great force, fluid could of course be driven into and through the tube. Danger would even then be possible if the injected fluid should displace a pathological tubal secretion and crowd it into the peritoneal cavity; but with care this is impossible." Hart and Barbour say: "In certain undoubted cases the uterine sound has been passed along the Fallopian tubes, while in others the supposed sounding of the tubes has been really the perforation of the uterine wall." Dr. Madden relates the following case: "Many years ago, having occasion to use the sound in a patient suffering from dysmenorrhœa, who had been sterile a long time, I was surprised, there being no enlargement of the uterus, to find that the sound passed in up to the handle, and that it had obviously entered the right Fallopian tube. A year later that lady gave birth to her first child, after eight years of married life. Since then I have repeatedly succeeded in accomplishing what in the first instance was but a happy accident, and more than once with a similar result. Hence, I invariably endeavor to impress, by clinical demonstration, the generally ignored fact that catheterism of the Fallopian tubes, when employed by a practiced hand with due caution, is a feasible, and in some instances may prove an effectual, method of treating certain cases of dysmenorrhœa and sterility otherwise incurable." Clarke writes as follows: "When called to cases in which the gonococci have gone beyond the uterus, I have succeeded in several instances in passing the uterine sound and probe into the Fallopian tubes, using the tincture of iodine as an application to these parts."

In February, 1892, Dr. Eliot published his first experience with this method, and has never had cause to regret its application in other cases. He thinks he has proved that it is possible to catheterize the Fallopian tubes, and, this being so, he says, the second proposition becomes self-evident.

In the same journal, Dr. William P. Carr, also of Washington, says that we can not doubt the possibility, in some cases,

of catheterizing the Fallopian tubes, as so many gynecologists have, upon various occasions, accidentally passed a sound into one or the other tube. It must be admitted, he says, that in some cases the tubes can be catheterized or sounded, but those cases are rare. The most interesting points to him in this connection are, first, the determination of what cases are suitable for the operation; secondly, what, if any, dangers attend it; and, thirdly, what benefits may be expected from it in such cases.

In order to pass a sound into the tube it is evident that the tube must be large enough to admit the sound without the use of force; and no sound or probe less than an eighth of an inch in diameter at the point should under any circumstances be used, as the danger of passing it through the uterine wall would be too great. We never know, says the author, the condition of the tube we are operating upon, and, unless the operation is done always as if we were dealing with a softened and convoluted tube, it is too dangerous to be tolerated. The tube, then, must be large enough to admit a probe an eighth of an inch in diameter—a thing that rarely occurs in health. Is it possible, asks Dr. Carr, that disease may enlarge the caliber? Not only must there be a large, patulous tube for sounding, but there must be a proper curve to the uterine canal so that a curved sound may be introduced. There must be, then, a combination of an abnormally large tube, a normally curved uterus, and a normally curved or free tube, or a tube distended with fluid near its uterine extremity, in order to make the operation possible within the limit of safety. How often, asks the author, can we hope to find these conditions fulfilled? Not once in a hundred times, assuredly; not once in five hundred, he believes.

In chronic disease of the tubes they are always contorted and adherent, and usually contain small collections of pus shut off by constriction or frequently by entire obliteration of the lumen of the tube. It is, then, the acute cases, with collections of fluid or pus in the uterine end of a tube of abnormally large caliber, and held there by recent adhesions or some plug of mucus or inspissated pus, that are the only suitable ones for catheterism. Of course, says Dr. Carr, it can not be determined beforehand whether all these conditions are fulfilled or not; but, if a possible case presents itself, there can be no objection to trying to introduce the sound or catheter before resorting to more radical methods, provided it is properly done. If the operation is done in the following manner, it is in itself devoid of danger:

Thoroughly cleanse the vagina with a bichloride douche, and have the hands and instruments aseptic. Introduce the speculum—either Sims's or a valve speculum—and sponge the vagina and cervix with a good antiseptic solution. Introduce the sterilized sound, not less than an eighth of an inch in diameter at its point, and curved so that, after its introduction into the uterus, its point may be turned to the side, when the natural conformation of the uterine cavity will guide it directly to the opening of the tube. This must be done with great care, and if the sound fails to enter the tube without the use of force, the attempt must be abandoned. No anæsthetic should be used, and, if the pain is great, it is probably because too much force is being used. The uterus itself under such circumstances is seldom sensitive. No traction should be made on the uterus, but the cervix may be steadied with a tenaculum.

If the operation is successful, the pus or fluid will flow through the catheter, or escape beside the sound, or follow its removal. We are told, says the author, that this has been done and that a cure has resulted in several instances. Ordinarily, however, we must expect to have to keep the tube open by repeated soundings, and even wash out the pus cavity gently through a catheter, or apply medicaments through it. In the

majority of cases there would probably be a condition similar to that resulting from the opening of a tubal abscess through the vagina, and that, as is well known, is far from satisfactory.

Tubal catheterism should never be attempted by any one unfamiliar with the pathological anatomy of tubal disease as learned from post-mortems and operations.

With all these restrictions and limitations, says Dr. Carr, a brilliant future can hardly be predicted for the operation, and yet, if, once or twice in a lifetime of practice, we are enabled by its use to delay an abdominal operations until the conditions are more favorable, or possibly to cure a patient without the operation, it is well worth bearing in mind, and no harm can come from making the attempt, before resorting to laparotomy, in cases of tubal abscess or hydrosalpingitis.

Auscultation of the Second Sounds of the Heart.—The *Lancet* for October 6th publishes an article by Dr. William Ewart, of London, who remarks that the important paper published in the preceding issue of that journal by Dr. Sydney Ringer and Dr. Arthur G. Phear, on the clinical significance of an accentuated second sound, ends with a conclusion which to all clinical workers can not fail to be discouraging. To this conclusion, says Dr. Ewart, they seem to have been led by too keen and gloomy a sense of a real difficulty—that of distinguishing and separately tracing the two second sounds. Several of the points raised by the authors were considered in Dr. Ewart's lecture On the Heart Sounds and on Accuracy in Cardiac Auscultation, published in the *Lancet* of May 27, 1893. Long before its publication he had satisfied himself that the right side of the heart did not conduct the pulmonary second sound, and that the area of audible conduction for this sound was limited and localized, while the aortic second sound was heard far and wide over the cardiac region and beyond it. Subsequent observations have confirmed him in the same views. The singularly limited area of loudness of the pulmonary second sound needs no better demonstration, he says, than is given by cases where the aortic valve is silenced by disease; the pulmonary sound, although it may be a loud one in its own district, is then not audible, or only faintly audible, beyond the latter. And, conversely, when the pulmonary sound at the left second interspace happens to be feeble, a loud second sound occurring at various other parts of the præcordium must be identified as of aortic origin, and is a sufficient proof that the aortic sound is capable of extensive diffusion. So great a disparity between the two sounds in respect to conduction must have some definite cause, perhaps not altogether beyond elucidation. At any rate, says the author, it is in itself sufficiently important to justify any inquiry into its mechanism, and the following considerations, based upon the examination of many hearts in the fresh state and after preparation, are offered in order to dispel the doubt to which reference has been made: 1. Systole, which brings the pulmonary valve into touch with the chest wall, does not materially alter the relation of the aorta to the latter. 2. Since from this point of contact the pulmonary artery recedes upward into the depth of the chest, its blood pressure bearing upon the valve would strike with obliquely sagittal direction against the chest wall, which is sometimes seen to quiver under the shock. The axis of the aorta at its origin is very different from this, forming during systole almost a straight line with the ventricular septum. 3. Attention should also be drawn to the anterior position of two of the pulmonary flaps as greatly favoring direct transmission of the valvular sound to the chest wall. 4. The relatively high position above the ventricular level occupied by the pulmonary valve. The valve is isolated at the extremity of the conus arteriosus from the main body of the right ventricle. Again, its relation to the ventricu-

lar septum, or rather to the upward prolongation of the latter, is not vertical, but lateral only. Lastly, it is isolated from the massive portion of the ventricular septum, upon which rests the aorta, by the entire diameter of that vessel. 5. Although in contact with the tip of both auricular appendices, the pulmonary artery is not in contact with the right auricle, which is therefore unable to conduct its sound vibrations. Thus the anatomical relations would not facilitate a conduction of the pulmonary sound either along the septum and left ventricle, or toward the right auricle, or even into the right ventricle. In all these points the aortic sound is, on the contrary, greatly favored. 6. The aortic valve is firmly planted at the top of the broadest part of the septum, which may be regarded as a first-rate conductor. 7. Its sinuses of Valsalva are so distributed as to propagate the aortic sound to the entire surface of the heart. One of them forms part of the superior boundary of the right ventricle, which thus receives at a central point direct transmission of the valve sound. Another projects into the *conus arteriosus* below the adjoining pulmonary flaps, cutting off, as it were, their line of communication downward into the right ventricle. The third bulges into both the right and left auricle. Moreover, the aorta above the valve is tightly wedged between the four cavities of the heart, to which it must communicate its vibrations. 8. It should not be forgotten that, in the healthy state, at the moment of production of the second sound the ventricular walls of the heart are gathered into a firm mass tightly applied to the septum, and with it constitute a solid plessimeter upon which the valvular succussion plays the part of a hammer. The excellent conduction of the aortic second sound to the apex of the heart is thus very clearly explained, and it is equally plain that conduction must also take place to the entire surface of the contracted ventricular cone. 9. Moreover, at the same moment the auricles are gorged with blood and the thinness of their wall enables their contents to receive the vibrations the more fully and to transmit them by fluid conduction. This, again, tells in favor of the aortic second sound, which is in this way propagated to the lower portion of the sternum and to the right lower parasternal area. 10. Lastly, in cases where the right ventricle fails to discharge its contents completely, the aortic second sound would be conveyed to the ventricular blood and through it to the right ventricular walls from the aortic sinus of Valsalva, which has been described as forming part of the upper boundary of the right ventricle; and the same reasoning would apply to inefficient systole of the left ventricle. On anatomical grounds it may therefore be said that the aortic second sound commands three cavities (the pulmonary artery through its right branch influencing only the left auricle) in addition to holding the high road for vibrations along the septum, and to practically excluding the pulmonary sound from propagation into the right ventricle. For the pulmonary sound there remains only loud and direct conduction to the anterior chest wall immediately covering the valve, as well as to a limited adjacent district, and inaudible conduction into the depth of the chest along the pulmonary artery and its branches.

Malignant Disease in Displaced Organs.—At a recent meeting of the Glasgow Medico-surgical Society, a report of which appears in the *Glasgow Medical Journal* for October, Dr. Hector C. Cameron related a series of cases in which organs, being congenitally displaced, had become the seat of malignant disease when the cancer age was reached. One organ which might be so displaced was the testicle, and he did not think that the dangers of undescended testicles were sufficiently recognized either by patients or by their medical attendants. The first case of this kind which Dr. Cameron had met with

had been seen by him when he was assistant to Sir Joseph Lister. There was a tumor of an undescended testicle in the groin, which had been removed, and the author thought that it was probably a sarcoma. In another case the patient had an inguinal hernia also, for which he had worn a truss, and Dr. Cameron thought that that had much to do with irritating the testicle and with the development of malignant disease in it. The hernia in the second case had become cured, but the testicle, in later life, had become enlarged, and, on removal, had been found carcinomatous. Six months later dyspeptic symptoms had supervened, and soon there were evidences of cancer in the liver and disseminated nodules over the abdominal cavity, probably in the peritonæum. Death had taken place two years after the removal of the primary tumor. In a third case hernia had been present from an early age. An operation for radical cure of the hernia had been performed, and the surgeon had found an atrophied undescended testicle. He had pulled it down and left it outside the external inguinal ring. Five or six years later it began to swell, and when Dr. Cameron saw the case the testicle was already larger than the clinched fist. There was, at that time, some pyrexia, with cough, expectoration, and dullness over one lung. A diagnosis was made of sarcoma of the testicle, and death subsequently took place from sarcoma of the lung. In a fourth case there was also the combination of undescended testicle and hernia, and a truss had been worn for some time. The testicle had become enlarged, and, on removal, had been found to be carcinomatous.

The author had already drawn attention to this want of development as predetermining the occurrence of cancer, in connection with the ætiology of scirrhus of the mamma, during the discussion on cancer in the Glasgow Pathological and Clinical Society in 1886. He believed pathologists had observed that ill-developed organs of this kind were prone to cancer when the cancer age was reached; organs also which were subject to irritation showed a like tendency.

With regard to another part of the body, the author related the case of a woman who had had a cancerous ulcer at the anterior axillary fold. She stated that she had been born with a "wart" there, which had occasionally been fretted and inflamed, but had not otherwise troubled her until within a year before coming under his observation. It had become very sore and discharged blood. On examination, there had been seen what did look like the remains of a wart at one side of the ulcer. The affected portion of the skin had been widely removed by an elliptical incision four years before, and there had been no further trouble. Dr. Coats had examined the specimen and had found that the supposed wart was a supernumerary nipple which had become the seat of epithelioma.

Occasionally, said Dr. Cameron, one had the opportunity of seeing malignant disease develop in cases of multiple wens. Many might be removed and a cancerous condition be found in one. It was a question if all such ulcerative developments in wens were carcinomatous, but sometimes they were. The author had had a patient who had a congenital dermoid cyst on the buttock which had been present since boyhood. It had become inflamed and suppurated, and had been opened. It had shown no sign of healing, but had become fungous, and the doctor had put the patient under the influence of chloroform and had scraped the cyst out. He had cut off a piece of the cyst wall and this had been found to be epitheliomatous. The author had ultimately removed the sore, together with a large part of the skin and of the *glutæus maximus*. He had found no adhesions to important structures, and, afterward, by grafting he had obtained a good result. Lately a swelling of the size of a hen's egg had appeared in the groin, but this had been removed, and the patient still continued well.

Lectures and Addresses.

THE TEACHING OF ANATOMY.

By WILLIAM KEILLER, F. R. C. S. Ed.,
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FORMERLY LECTURER ON ANATOMY IN THE SCHOOL OF MEDICINE,
EDINBURGH, SCOTLAND.

LECTURE III.—THE DISSECTING ROOM; PRACTICAL ANATOMY AND LECTURES.

On opening the subject of the dissecting room it may be well to look at one or two points in the construction of the building which are necessary to make it what a modern dissecting room should be. The whole or great part of every modern medical building should be occupied by the anatomical department, the necessary rooms including a dissecting room, professor's private room and private museum, demonstrator's room and work room combined, students' room for hats and lockers (two of these if male and female students are both admitted), a large and small lecture room (the lecturer's area of which shall so open on the dissecting-room floor that bodies can be readily wheeled from the dissecting to the lecture room), a bone room and students' reading museum, attendants' room and urinal.

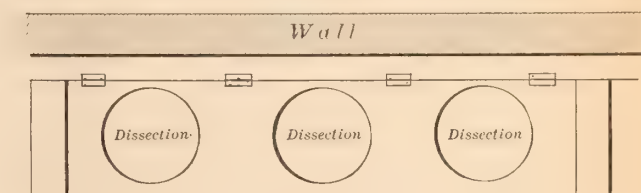
The dissecting room should be of a sufficient size to admit of one table to every five students of the first and second years, or about thirty tables for a hundred and sixty men, and each table requires at least ten feet by fifteen feet. Thus a dissecting room for a school in which during the first and second years a total of a hundred and sixty men may be expected to dissect must at least be forty-six feet wide by a hundred and eight feet long. This would accommodate three rows of ten tables each. It must face the north, that in warm climates it may be cool and that in all climates it may avoid direct sunlight. The main light must be got from the roof. No side windows, however high, are capable of giving sufficient light for dissecting purposes.* It is impossible to appreciate the importance of this roof lighting till, after having dissected in a roof-lit room, you try to dissect with side lights. For all the more important dissections a light coming right from overhead is absolutely necessary. The roof, then, should be one third glass on all sides, all sides except the north being of obscured glass to disperse the rays of direct sunlight, and its method of construction should be such as to afford the minimum of surface for the lodgment of dust. The room should be one large oblong, that its whole area may be taken in at one glance, a matter of great importance in the management of a large dissecting class. The walls to the height of nine feet should be

* The importance of roof lighting in the construction of all buildings for scientific purposes requires the attention of architects. Roof decoration should be limited—the more so the better—and with the exception, perhaps, of a central dome the rest of the roof should be glazed. The windows could each be furnished with blinds which could be raised with the windows in warm weather, or other means could be adopted to combine roof lighting with thorough ventilation.

of glazed brick or cement. For the floor I do not like asphalt, were it only for its black color, yet, though not necessary, it is a great advantage to have a watertight floor sloping to a gutter down one side, and I suppose asphalt is the only practicable material of which such a floor can be made (except in the basement). But if the expense were not so great I should prefer a wooden floor, with calked seams like a ship's deck, sloping to a side gutter, so that it could be flushed with water and washed as easily as a ship's deck is washed. Conveniently situated at the side of the room should be twenty or thirty basins with hot and cold water and suitable towel racks, and near this a urinal. If ladies are to be admitted there should be a ladies' room containing lavatory, cloak room, lounge, and lockers.

With regard to dissecting tables, though slate tops are easily kept clean, and can not be cut by the inevitable pocket knife of the junior (or senior, for that matter), they and their metal frame are exceedingly heavy and very expensive. Zinc tables corrode readily, lead is too expensive, and I have found a wooden table such as I describe suits admirably, its only objection being the ease with which it can be attacked by the before-mentioned pocket knife. The table frame is very strong and firm, the legs four inches in diameter. The tops are of hard wood, six feet six inches long by one foot ten inches wide and an inch and a half thick. The top slopes toward the center (dip, an inch) and towards one end (fall, three inches), the height at the higher end being three feet two inches. A wooden bucket in which some water is kept is hung on the lower end. The vacant sides of the room should be occupied by a framework containing dissections conveniently mounted for reading, as is the custom in Scotch dissecting rooms.

I shall have more to say of this method of mounting dissections by and by, as I am not aware that it has been as yet described; the following will suffice to indicate my meaning: Take such a region as the popliteal space. The limb having been injected, a portion is cut, including five or six inches above and four or five inches below the knee joint, a firm bandage two inches broad having been previously applied below the upper point of section and above the lower to maintain the parts in their proper positions after section. This is at once transferred to the basin which is to contain it permanently and covered with a mixture of one third wood alcohol and two thirds



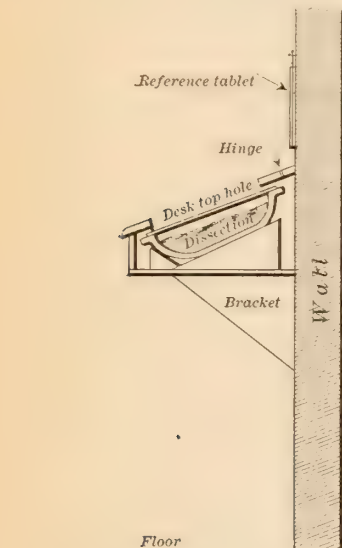
View of top of Case.

FIG. 1.

water. The basin may be round or oblong, is of white glazed earthenware, has a small hole for filling at the side near the top, and has a broad ground brim to which is

fitted a thick plate-glass cover, ground round the edges to fit it accurately (but half an inch less in diameter than the top of basin), and with another hole bored at one side for filling. Proper skin flaps are now raised from the region to be dissected, the dissection made with the utmost care, and then carefully mounted in the basin in plaster of Paris. The dissection is finished under dilute spirit, the arteries painted, parts lettered for reference, and the cover fixed on with red lead and gold size. When this is hard the vacant space between the dissection and the glass, the preparation being conveniently tilted, is filled with one-to-two alcohol and water, and the basin put in the reading case. The case is a desk-like structure running along the available

wall space, with sloping hinged cover like an old-fashioned desk top, holes being cut opposite the dissections, and sufficient space left between the holes for a book. Within the case, raised and tilted so as to be nearly flush with the desk top, the jars containing the dissections are placed. With reference to these mounted dissections there is this to be said: They are in no wise intended to supply the place of personal dissection, nor are they so good for revision as preparations which the student can handle; but



Reading Case seen in section.

FIG. 2.

they fill a most important place, especially in a large school. If they only consist of a complete series of frozen (and subsequently hardened) sections they are invaluable aids to the student; but under the heading of "The Museum" I shall have more to say on this matter. Of the larger lecture room I have little to say; the modern "theatre" with elevated seats for the students is the proper type. The lecturer's area must be conveniently arranged for having a body wheeled in, and the students should not enter through this area. But this much must be remembered: there must be no windows behind the lecturer, or the students' eyes will be dazzled and they will not see the blackboard. The whole wall behind the lecturer should be reserved for diagrams and blackboards and the corners on each side of the lecturer in a large classroom should not be occupied by seats from which diagrams or blackboard will not be plainly visible. A narrow, light, revolving table, six feet by two feet, and a convenient shelf with boxes for chalk, duster, etc., is all the furniture. A desk should be provided for the students as well as seats—chairs for the students are showy and comfortable, but take too much room. In a well-ventilated class room we want our students close beside us when we are lecturing. Of the small lecture room for tutorials and demonstrations I have something to say. The principle in the arrangement of this room must

be that the largest possible number of students should get a perfect view of the dissection which is being demonstrated or made the subject of a quiz. It must therefore be roof lit, the demonstrator's back being to the wall. The area must be large enough to contain the revolving table and leave space to walk round and no larger. The table is to be a convenient height for the demonstrator to stand while exhibiting the structure, and the students' seats are to be arranged as close together and at as steep an incline as possible. We do not want a magnificent classroom where the student can comfortably go to sleep, but where only the front rows can see anything. The professor's private room, work-room, and attendant's room should all have a water supply, the first a toilet basin, the last two that and a large glazed sink; while in the last, in the south at least, a tank sufficiently large to contain one body would be a valuable adjunct, as a body or limb will get fungi on it occasionally, and it ought then to be at once immersed over night in a strong antiseptic. The students' cloak room should contain as many lockers as there are students, size of each locker one cubic foot and numbered, the same number being printed on a corresponding hat hook. It is probably best to let each student provide himself with a keyed or combination padlock; no lock will keep out the thief in the class, and in every large class there is always one of that objectionable species. The bone room and students' reading museum should be a large, well-lit, comfortable room, and in this, or the demonstrator's or professor's room should be the bone library. My own bone library is in my private room (which is also my head demonstrator's room and work room, as I prefer to have them all together). A little shutter is opened to communicate with the borrower, and on either side the bones are arranged in proper compartments ready to the librarian's hand. Each student makes a deposit, and may have one or two bones at a time. His deposit is returned if his account be square at the end of the session.

All these rooms must be on the same floor as the dissecting room, and this, of course, should also communicate with the preparing room in the basement by an elevator.

Dissecting.—Which method of dissecting shall we follow, the systematic or the regional? This is the first question requiring decision, and it were better that the matter were fairly weighed and not left to custom to settle. First, I would lay down the principle that whichever method is to be pursued the student should be made to pass an examination on the bones of the part he is to dissect before being allowed to touch a scalpel. An accurate knowledge of the bones is an absolute essential to all good anatomy, and no superficial knowledge should be accepted. The student should be required to mark accurately in chalk the bony attachment of each muscle and ligament; to know the position and relations of the epiphyseal lines; to acquire a broad idea of the times of ossification; and to recognize bony prominences under the skin. He should know the skull bones thoroughly both separately and articulated, and should get up as a basis of more rational knowledge every foramen and what passes through it. No student who fails to take fifty per cent. in a rigid practical examination

on the bones of his part should be allowed to commence dissecting till he has mastered them. It is absolutely impossible to read the muscles intelligently till the bones are perfectly familiar. So important do I consider the skeleton that I consider a private disarticulated set of bones as necessary to each student as his books; but a bone library will be the next best thing to supply the deficiency, and each student should be taught to mark the muscles on the bones as he reads from the diagrams in his books or from painted bones under glass in the bone room. Colored chalks are the best thing to use (blackboard chalks, not chalk pencils), and the old marks may be readily removed by a little hydrochloric acid.

I object to the systematic method of dissecting, where the student first dissects the muscles, with little or no attention to vessels and nerves, and makes a second dissection of vessels and nerves, and I prefer the regional method, and that for the following reasons:

1. With proper preparation of the bodies it is not necessary that the student should hurry over his work that the part may be got off the table. There is no reason why a part should not keep well for six months or more. Speed, then, is no argument in favor of the systematic method.

2. The systematic method involves a great waste of material. This may not matter where material is unlimited, but is an insuperable objection where bodies are short of the demand. I believe that deficiency in material gave rise to the regional method of dissecting.

3. The systematic method begets a careless habit of dissecting. It is scarcely possible to teach the student to disregard vessels and nerves in his first dissection and at the same time to clean his muscles thoroughly, while in his second dissection it is impossible to thoroughly clean vessels and nerves, removing all cellular tissue and fat from around them and defining them, without cleaning the muscles, and this involves careless work or waste of time. That one may get a proper view of any muscle it is necessary to thoroughly remove its fascia propria; to get a proper idea of a vessel's relations it must be studied when as little disturbed as possible and also when thoroughly cleaned. Nothing so trains the hand to good surgery as careful dissecting; therefore let us teach our students to work carefully, thoroughly, and accurately from the beginning.

4. The systematic method does not so thoroughly fix the relations of the parts in the student's mind as the regional method. The relations of the parts to each other is the very foundation of the regional method; every step in the dissection requires the observation of a relation. And the relations of parts to each other and to the surface of the body are at once the most important and most difficult of recollection among anatomical facts. For the acquisition of such knowledge there is no comparison between the two methods, the regional being by far the best. Were time, patience, and the supply of bodies unlimited, the best way to get up anatomy might be, first, to dissect the body systematically, then by regions, then to study it by sections, and lastly to make a series of dissections to expose important surgical structures. But "art is long and time

is fleeting," so we must acquire the most knowledge possible in the shortest time.

5. While it is undoubtedly easier to acquire anatomical facts by systematic dissection, it does not follow that the knowledge thus obtained is longest remembered; on the contrary, I feel sure that the slow and laborious dissection of the body by regions will impress the facts on the student's mind more indelibly than any other method.

6. By regional dissection the student sees the parts as nearly as possible such as he shall meet them in the operating room. Therefore I would have him examine each region as carefully as possible when the parts are least disturbed. The axilla should be cleared of its fat and the main relations studied before the pectoralis major is reflected; the cubital fossa and popliteal space should be studied before the front of the arm and back of the thigh have the skin reflected from them.

The next question for decision is how, in a strictly graded two-years' course of anatomy, to best divide the subject. My present method is to make my juniors get up the whole arm and leg (including bones, joints, and soft parts) and the bones of the trunk and head. This, where only two hours daily are given to the subject, leaves only a little time over at the end for revision (our session is seven months), but if I had any time over I would give a superficial sketch of the thoracic and abdominal organs to prepare them for their lectures on practice of medicine and surgery in the second year. In the second year they get up the trunk, head, and neck, brain, eye, and ear, and the elements of embryology. This was the division of the subject made by the Royal Colleges of Physicians and Surgeons, Edinburgh, for their first and second professional examinations, except, of course, that in the second examination the whole body was included, and I have adhered to it. I think it the best division for the following reasons: The anatomy of the extremities is especially suited to juniors because it is very definite and easily verified by dissection. There is nothing so fixed and definite and readily demonstrable about the abdomen and thorax, and while it would be well that the student should as quickly as possible master these regions to prepare him for his physiology, etc., still I feel confident that they do not afford the same field for accurate training in anatomical methods as the extremities do. Then the head and neck are too hard for the junior. To carry out my method of teaching I have found it best to appoint two juniors to each arm and leg, two seniors to the trunk, and two seniors to the head and neck. The brains I remove immediately after the bodies are injected, harden them, and give them to the seniors to dissect later on. The two men on the trunk dissect opposite sides, those on the head dissect the same side together, as it is impossible for two dissectors to work on the head at the same time. The rule is that the two companion dissectors shall dissect and read in turns. When a body is brought up, blocks are arranged on the table below the shoulders and pelvis; over these is thrown a large oiled sheet, and over this a sheet wrung out of a chloride-of-zinc and corrosive-sublimate solution. In these the body is wrapped. As soon as the parts are distributed it is the duty of each

student to wrap up his part in a separate wet cloth and oiled wrapper, paying especial attention to hands and feet. Throughout his dissection he is instructed to expose as little as possible and to rub the dissected part frequently with carbolic-acid glycerin (1 part in 10). This is all that is necessary to keep the parts indefinitely. The parts being wrapped up, the body is first tied in the lithotomy position for the dissection of the perinæum by the trunk men, and till this is finished no other dissection can proceed. For the rest, my method is similar, with minor variations, to that described in Ellis, Holden, Heath, or Cunningham. I find Ellis and Cunningham too much for the ordinary junior, but invaluable to the advanced student, while, on the whole, I prefer Heath for ordinary students' purposes.

Now comes the problem how to deliver a course of lectures which shall assist the student in his practical work, for undoubtedly the dissecting-room work is the most important, and lectures will be most successful if the student finds in them the best aid to his dissecting, and if they assist him in getting up and retaining what he daily finds with his scalpel. I do not believe much in systematic lectures on anatomy where the student's time is at all limited, as it is of necessity in a three-years' course. It is exceedingly difficult to maintain the attention of the majority unless each lecture can have some bearing on their practical work; and if time be at all pressing, it is hard for the average student to keep up his reading both with a systematic and a practical course. In the endeavor to keep my students dissecting with uniformity, I devised the following method when my class was small, and I have now verified that, though with a large class it is laborious, yet it is practicable, and teaches more anatomy in a given time than any other method I have tried or am acquainted with. The time at my disposal is, for junior students, two hours daily (11 A. M. to 1 P. M.), and for senior students two hours daily (2 to 4 P. M.). On Saturdays the hours are earlier, Saturday afternoon being a half holiday. My junior students are divided into two sections, those dissecting the arm and those dissecting the leg. On Monday I lecture to the arm section from 11 A. M. to 12 M., while during the same hour my demonstrator has a quiz class with the leg section on the previous day's work; from 12 M. to 1 P. M. I lecture to the leg section, and my demonstrator quizzes the arm section. On Tuesday both sections will dissect what I have lectured on. If necessary, two lecture days or two dissecting days may be made to follow each other. I have proved that this is a good practical method with a class of over ninety juniors and with a correspondingly large senior class. My lectures are therefore lectures on regional anatomy, conveying instruction for the following day's dissection, describing its salient points, and giving the student diagrams to assist his memory, calling his attention to points of applied anatomy; telling him, in fact, what to look for, how and where to look for it, and how to fix it in his memory. In my lecture class I do not use dissections, for few can see them, and their use is elsewhere. I depend entirely on diagrams, and these I always draw before the class. There is no comparison as regards

usefulness between the diagrams drawn before the class and the finished picture hung up on the board.

One great advantage is that, once get him impressed with their utility, and the poorest draughtsman in the class will try to copy your diagrams, and when the anatomy student begins to make his own diagrams, however rude they be, he has got on the right track for a sound anatomical training. For those lecturers who are not ready draughtsmen, I would advise the use of separate blackboards with outlines of bones painted on them permanently in white.

Let me explain their use first, and then I will show how such blackboards can be cheaply constructed. Suppose a lecture on the gluteal region. Have prepared two, or at most three blackboards, with outlines of the bones. I outline them myself in white chalk as I want them, glancing at the skeleton as a guide. Draw in first before the class the greater and lesser sacro-sciatic ligaments; next mark faintly in colors the origins and insertions of all the muscles, asking, if you like, members of the class to name them as you put them in; guided by these, fill in the deepest muscles; then on the top of this put in vivid colors the main vessels and nerves; now cover these up with the *glutæi medius* and *maximus*, and you have given your students a general view of the region. Do this now in the reverse order and in more detail, making a separate picture of each stage of the dissection, supplementing with simple outline diagrams of the gluteal and sciatic vessels and another of the sacral plexus, and the students who take down each of these diagrams and follow your descriptions feel that they know something about the region. I find that men who despair at first of drawing anything soon take down my diagrams pretty well; but the work would be greatly facilitated by supplying the students with a series of outlines to be filled in.

The blackboards can be made cheaply in any number. Procure some cheap floor cloth, cutting it into the requisite number of sheets, all of the size most convenient for an average diagram (all must be exactly the same). Paste on one or both sides of these a sheet of prepared blackboard cloth, using a paste made of flour paste and glue; put brass eyelets, such as are used for sails or horse covers, into the two upper covers, and you have as many handy blackboards as you may wish. Have an easel and common blackboard with two nails to stretch the one you are using on, and when you are done with it hang it up on two convenient nails on the class-room wall. Outlines painted on these in white oil colors, or in a mixture of gold size and zinc white, will remain permanent and allow any amount of chalk work.

When my arm and leg sections have finishing dissecting these parts their work is reversed, and the same course renewed. So the seniors are divided into a trunk section and a head and neck section, while all the juniors join for the joints and skull bones, and all the seniors are taken together for brain, eye, and ear. Now I would submit that such a series of lectures is much more useful to the student than an attempt to go systematically through Gray, repeating carefully, for example, the origin and insertion of

every muscle, its action and nerve supply, even though we show each point described on dissection, skeleton, model, or finished drawing.

Original Communications.

LAPAROTOMY FOR PELVIC DISEASES.

WHY CONTINUE IT?

By R. STANSBURY SUTTON, M. D.,

ALLEGHENY, PA.,
SURGEON TO TERRACE BANK HOSPITAL FOR WOMEN.

SINCE Tait taught us in 1880 that something beyond the administration of drugs might be done for women suffering from diseased uterine appendages, he has had an enormous following in the United States. No end of good has come from his wonderful advance beyond the teachings of those who represented gynecology before his time. No end of evil has followed in the wake of his disciples. Like all improvements of great merit in modern times, his method brought relief to thousands, death to hundreds, and exchanged one misery for another in scores of others. Tait was a giant. He stimulated thousands of surgeons to think for themselves, to act independently of ancient literature, to seek a new medical religion. He played his part in the great drama of human progress. But are we not now, after more than a decade of observation from the high plane to which he called us, to ascend still higher and to achieve for women more than has yet been achieved? Are we to continue doing laparotomy for pelvic diseases? I believe that I know whereof I speak when I venture the statement that we are not. Since Péan, in 1891, began attacking pelvic diseases through the vault of the vagina a new advance has been in progress. Following Péan came Segond, Jacobs, Sänger, Leopold, Landau, and others, to confirm and to still further advance the good work begun and continued by Péan. The day has gone by when we can longer afford to adhere to laparotomy for pelvic diseases and tumors growing from the pelvic organs and still young, or still occupying the pelvis and even the lower abdominal cavity. Jacobs has proved that eighty-five per cent. of women requiring removal of the uterine appendages have been infected by gonorrhœa. Is it logical to do total extirpation or laparotomy in these cases? Why remove the uterine appendages and leave an infected uterus? Why imbed ligatures in infected tissues to be subsequently the center of exudates and pus cavities? Why leave in the peritoneal cavity the infected stumps of infected tubes? Why run the risk, by the old conservative laparotomy of Tait, of suppurating wounds, fæcal fistulas, returning ligatures, and ventral hernias? Is the infected uterus worth saving at such a cost? Why not remove the infected uterus, rather than leave it to continue bleeding, and to be the *fons et origo* of a nasty catarrhal discharge, loaded with all the bacteria of the laboratory? Jacobs tells me that in not a single case of recovery from total extirpation is there a troublesome sequela. Can we say anything like this for laparotomy? Truly he is a tyro

who will assert so clear a record for laparotomy. What of the fifteen per cent. of cases infected by tuberculosis, dirty and officious gynecological procedures, the foul discharges after abortion? If we must remove the appendages, why spare a useless and diseased uterus? If the infection has traveled by the lymphatics, and abscess is the result, evacuation by the vaginal route is more rational than a route made patent by laparotomy and a tube. If the uterus is the seat of a fibroid, interstitial in character, Péan has even pointed out at the recent congress in Rome that it may be removed by the vaginal route. If the uterus is to be sacrificed, then by total extirpation and *morcellement* all may be removed by the vagina with ease and safety, as I have seen Jacobs do, avoiding all the risks of the troublesome sequelæ of laparotomy. Small cysts of the ovary, large cysts without high adhesion, parovarian cysts, fibroids of median dimensions, may all be removed by the vagina, with or without total extirpation. The time has surely come to call a halt on the universal custom of opening a woman's abdomen by laparotomy for every ailment of her pelvic basin. Are there other advantages than those hinted at for substituting total extirpation or vaginal section for laparotomy? Jacobs has had a mortality of 1.4 per cent. in one hundred and forty total extirpations by the vagina. Tait says that three per cent. is an allowable mortality in laparotomy for removal of the uterine appendages. My own mortality is a fraction under three per cent., but Jacobs and Péan have done better than this in total extirpation by the vagina. The average length of time the laparotomy patient is confined to bed is nearer twenty-one than fourteen days. I saw Jacobs's patients sitting about the wards and rooms knitting on the eighth day after total extirpation. Did you ever see anything like this after laparotomy? I saw his patients, after total extirpation, in the garden in ten days. How often after laparotomy have you seen this? I have in many years' experience had a few cases go to their homes near by in ten and twelve days.

It is rare—with Jacobs's patients it is the rule—to be up in eight days, to go home in fourteen. Why not abandon laparotomy for an operation giving so many phenomenal advantages? It may be forgiven one who operates in a provincial town for thus appealing to the great operators of the metropolis. But, forgiven or not, I beseech them to let go of the old operation, followed so often by disappointment, for the new, which promises for suffering women everything which the old operation gave them plus what it did not give them, viz., a cure.

The Soft-rubber Plessimeter.—In the *Deutsche Medizinische Zeitung* for October 4th there is an abstract of an article which appeared in the *Berliner klinische Wochenschrift*, in which it is stated that for a number of years Professor Ewald, of Berlin, has used soft rubber as a plessimeter. The author remarks that plessimeters made of any material which gives out a clang of its own when struck are objectionable, and that soft rubber has hardly any of this objectionable property. It is added, too, that soft rubber accommodates itself better than any other available material to irregularities of the surface, such, for example, as the prominent collar-bones of emaciated persons.

A CASE OF CIRROID ANEURYSM. LIGATURE OF THE COMMON CAROTID ARTERY.*

By WILLIAM D. HAMILTON, B.A., M.D.,
COLUMBUS, OHIO.

THE patient, C. W., a farm laborer, nineteen years of age, was referred to the writer by Dr. Holcomb, of Pennsville, Morgan County, Ohio. He had always enjoyed fair health.

The disease for which he sought relief had existed from childhood. At the time of his admission to the Mount Carmel Hospital, January 25, 1894, the following facts were observed: A pulsating tumor occupied the right side of the head and face. It was purplish in color and lobulated in shape. The overlying skin and the subjacent bones of the skull had been thinned by the throbbing of this vascular mass. From near its origin in the neck the external carotid artery was dilated and tortuous. The temporal branch was chiefly affected. Three straight lines, connecting the right external auditory meatus, the bridge of the nose, and the center of the top of the head, would roughly have outlined the area involved. The entire triangular surface thus described was covered by the growth. A distinct bruit could be heard over most parts of it, more clearly, however, in the course of the external carotid. The temperature of the part was slightly elevated. An impulse could everywhere be felt in it with the finger. The tumor could be compressed with the hand by firm pressure, but not controlled if thus diffused. A finger against the right common carotid would stop pulsation completely. Similar force upon the external carotid was less effective. The discoloration and tumefaction extended to the right eyelids. On the forehead the tumor reached for a distance of half an inch beyond the median line. The greatest prominence in front was in the neighborhood of the right frontal eminence, while the region of the side of the head within the limits specified showed marked distortion and powerful and rich vascularization from its encroachments. A deep sulcus in the subjacent bones marked the course of the temporal. The diagnosis was that of cirroid aneurysm.

Surgeons are agreed that cases of the kind are usually intractable. It is a significant fact that, while many expedients have been tried for their correction, no reliance can be put upon any particular method.

Frequently the very multiplicity of therapeutic or surgical suggestions for the treatment of a disease is a concession of our weakness in coping with it.

It may be well to name the procedures that have, with some degree of success, been advocated for the treatment of this pathological condition:

1. Ligation of one or both carotids.
2. Excision.
3. Hypodermic injections of tincture of chloride of iron or of pure alcohol.
4. Galvano-puncture.
5. Direct ligation all around the periphery by multiple ligatures tied over compresses of gauze.
6. Barwell's scarless continuous chain of ligations with needle and thread.

Owing to its extent and the danger of hæmorrhage from any slight or severe traumatism or inflammatory or ulcerative process, it was thought best to operate.

Two other ideas influenced us in the decision of the matter,

though they were not paramount: the patient was anxious to have it done; again, it was hoped that there might be an improvement in his appearance.

As to what to do in an operative way: It was too diffuse to tie in segments. Electrolysis was abandoned as unpromising and impracticable for the same reason. Injection meant the risk of embolism. Excision implied a perilous, bloody performance with profound shock. Peripheral ligation piecemeal would have left a diseased external carotid, showing incompleteness or recurrence, or both.



FIG. 1.

It was decided to tie the common carotid for three reasons: First, the attenuation of the walls of the external branch incapacitated it for the reception of a ligature; second, the engorgement of the right eye and lids showed how readily the collateral circulation through the internal branch might spoil the result if only the external were tied; third, the facility with which the common trunk could be tied. He was prepared by shaving and disinfecting the scalp. The head and neck were scrubbed with green soap, washed with ether, alcohol, and sublimate water, and a bulky gauze dressing was applied.



FIG. 2.

The operation was performed at the clinic at the hospital on January 26th. Ether was used as an anæsthetic. The usual incision was made along the anterior border of the sterno-mas-

* Read before the Ohio State Medical Society, May 16, 1894.

toid muscle. Its center was opposite the cricoid cartilage. Its sheath having been exposed, was incised at the point of crossing of the omo-hyoid muscle, the latter being hooked downward to give more space. No. 10 silk, which had been prepared by boiling and by soaking in alcohol, was used for a ligature.

The pulsation in the tumor at once ceased after tying the vessel. The wound was closed and dressed in the usual way. He was discharged from the hospital on February 16th, the wound having healed. The tumor had diminished in size, and the discoloration of skin had subsided.

The accompanying photographs, taken before and after the operation, show the decided improvement in his appearance. Up to this time there has been no sign of recurrence, and there is good reason for thinking that the result will be curative. He now does heavy work without dread or hindrance.

142 EAST LONG STREET.

BRADYCARDIA

CAUSED BY

ANEURYSM OF ONE OF THE SINUSES OF VALSALVA.

By W. J. PETTUS, M. D.,

PASSED ASSISTANT SURGEON, U. S. MARINE-HOSPITAL SERVICE.

J. S., aged thirty-eight years; fireman; was admitted to the marine ward of the Sisters of Charity Hospital, Buffalo, N. Y., on March 30, 1894, complaining of fainting spells and shortness of breath. His appearance resembled that of a case of advanced mitral regurgitation, but there was no oedema of hands or feet; lungs normal; auscultation of his heart disclosed a marked systolic murmur in the fourth intercostal space to the left of the sternum. The murmur was harsh in character; the cardiac rhythm very slow, but regular, numbering twenty-four beats to the minute. This bradycardia continued during his stay in the hospital up to the time of his death, thirty-two days after admission. He gave a history of severe attacks of paroxysmal pain over the heart, beginning two years before admission. Two months before, frequent attacks of syncope had occurred, caused by any unusual exertion, lasting two or three minutes. His attacks of syncope had been diagnosticated as epilepsy, and he had been treated for this disease. Had syphilis seven years ago. Respiration was fourteen per minute. Examination of urine negative. The house physician, Dr. White, was instructed to watch for an attack of syncope and count his pulse during the attack. He did this on the day following the patient's admission, and found that the beats fell to fourteen per minute. A careful sphygmographic tracing of his pulse was taken a few days after admission, but it failed to show any indication of organic disease. There was a slight wavering in the ascending stroke. Hypodermic injections of one fiftieth of a grain of strychnine and one one-hundredth of a grain of atropine stopped the fainting spells and relieved to a great extent the pain over the cardiac region during the first three weeks of his stay in the hospital; then they seemed to lose their effect. Afterward additional hypodermics of one one-hundredth of a grain of atropine alone were given with considerable effect in controlling these symptoms. Half an hour after the administration of these remedies the pulse would number thirty-two to the minute. In the mornings, before his first hypodermic injection of the day, it averaged twenty beats a minute. He could never, during the time under observation, lie on his left side without causing severe pain over the cardiac region. Since the hypodermic injections of atropine failed to relieve the bradycardia, it was fair to infer that the slow rhythm was not due to any disease of the vagus or its cen-

ter, but was probably caused by some organic disease of the heart itself or its automatic motor apparatus. There was a possibility of some cerebral complication, but the autopsy failed to show any lesion of the brain. The murmur heard on auscultation over the mitral area was thought to be due to insufficiency of that valve; sounds over the other valves were normal. The sphygmographic tracings rendered this diagnosis very improbable. He died suddenly on May 1st while sitting up to drink some soup.

"Autopsy seven hours after death. Lungs and pleura normal, excepting two small adhesions on right side. Upon opening pericardium an enlargement of right auricle was at once apparent. Aortic valves competent by hydrostatic test. An aneurysmal sac was found projecting downward from right sinus of Valsalva, involving orifice of right coronary artery. The sac extended downward and to the right into the right auricle. It could not be detected from the external appearance of the heart or aorta. The right auricle was much dilated, with



marked hypertrophy of its walls and muscular fibers. The tricuspid and pulmonary valves were normal. Mitral valvular orifice slightly stenosed, and there was a small adhesion between the lesser mitral flap and the endocardium. The aneurysm was about an inch in depth by three quarters of an inch in diameter. The opening into the sac, behind and below the cusp, was half an inch in diameter. The complete closure of the valves was not prevented by the aneurysm. The sac was lined with a thin, laminated clot that completely occluded the orifice of the coronary artery. Muscular substance of heart seemed normal. The opening of left coronary was normal. Brain normal."

Inasmuch as the mouth of the right coronary artery was completely occluded by the laminated blood clot in the aneurysm, it is fair to conclude that the bradycardia was caused by the consequent defect in the proper blood supply of the cardiac muscle, thus deranging the automatic motor apparatus of the heart. The attacks of angina pectoris, dating back two years, were probably due to the aneurysm, then just beginning to form.

BUFFALO, N. Y., August 29, 1894.

INTESTINAL ANTISEPTICS AND AROMATIC SULPHATES.

By JOHN A. WESENER, PH. C., M. D.,

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THE cause of putrefaction in the digestive tract has frequently been the subject of scientific research. According to Landois and Brunson, indigestion is one of the most active causes of nervous depression, the depression being due to self-intoxication by such material as undergoes improper changes in the digestive tract. This decay of food occurs mostly in the intestines, because here we meet two potent factors—namely, an albuminoid fluid prone to decay and bacteria prone to cause the decay most rapidly. We also find bacteria that convert the

albuminoid bodies into such harmful material. Through the labors of Jaffé, Baumann, Brieger, and others, it has been ascertained that the most important of these products, which belong to the aromatic series, are elaborated as such in the small intestine and eliminated with the urine.

These products are indol, phenol, skatol, paracreosol, and pyrocatechin. They appear in the urine combined with H_2SO_4 and are known as the aromatic group. Could it be proved that these chemical changes take place only on the decomposition of the albuminoids in the intestine, and that they do not form in any other part of the body, then an opinion could be given as to the extent of the decay, or putrefaction, by means of chemical examination of the urine.

Baumann noticed in a patient with a fistula in the upper part of the small intestine that urine during the time in which the intestinal contents did not pass out by the natural means showed a considerable diminution of aromatic sulphates, containing only traces of phenol and indol. When this fistula was closed and the intestines restored to their normal function, it was noticed that the elimination of the aromatic sulphates was increased very much.

An exactly similar case was reported by Ewald.

On the strength of these observations it goes to show that in the jejunum a certain number of aromatic combinations are produced by the action of micro-organisms and the intestinal juices on the food.

Baumann and Wasliff found a decrease of aromatic sulphates in the urine of starving dogs, and an entire absence of the same after the intestine had been disinfected by means of large doses of calomel given several consecutive days. It might be well to mention here the researches of Ortwiler, who ascertained that in febrile diseases not involving the intestinal tract, which are accompanied by destructive tissue changes, there is no increase of indican in the urine.

If these aromatic combinations are not products of intestinal decay, then why do we not find them in the muscles and in healthy organs? All investigations have failed to show their presence there, while on the other hand the intestinal discharges of starving animals always show the presence of considerable indol; furthermore, it has been proved by Küchne and Nencke that indol is exclusively a product resulting from the action of bacteria on albuminoids. If we consider that micro organisms do not occur in the tissues of healthy organs, as has been conclusively proved by Meisner, Zahn, and Henser, we must necessarily come to the conclusion that the formation of aromatic combinations in the organs outside of the intestinal tract is under physiological conditions out of the question.

Salkowski has shown that there is an increase of indol and phenol in the urine of patients who suffer from ileitis and peritonitis. Brieger has shown that in chronic anæmia and in cachexia there is much indoxyl and little phenol in the urine, whereas in diseases of the stomach there is an increase of phenol, leading one to infer that free HCl is a large factor in lessening putrefaction.

He found an increase of phenol in tuberculosis of the

peritonæum, acute peritonitis with constipation, empyema of the lungs, septic and puerperal fevers, diphtheria, erysipelas, etc. He concludes from this that phenol shows either increased decomposition of the contents of the intestine or the presence of a putrid area in the body.

Jaffé found an increase of indoxyl in diseases of the small intestine; a decrease in dysentery, pathological conditions of the large intestine, stomach, and duodenum.

Senator reports an increase of indol in chronic wasting diseases—such as malignant lymphoma, chronic peritonitis, and cancer of the stomach.

The writer of this paper has found the aromatic combinations greatly increased in one case of pernicious anæmia and in a number of chlorotics. It may be said here, before administering iron to these cases, it is absolutely necessary to disinfect the intestinal canal as given later in the article.

Heninge says that a large amount of indoxyl is present in the urine of pernicious anæmia, typhus, cholera, chronic suppuration, progressive atrophy of muscles, and Addison's disease. He attributes it in part to the increased separation of the constituent of the albuminoids and in part to an increase in the amount of pancreatic juice.

Hoppe-Seyler, as a result of exact clinical investigation, has come to the conclusion that in general the excretion of these bodies goes hand in hand with an increase of those processes which impair the digestion in the small intestine. The investigations of Hirschler, T. R. Müller, Helden, and others show that the aromatics are diminished in the urine when the albuminoids are excluded from the food and a large amount of carbohydrates is used instead. As a result of these observations we can see that the derivatives of the aromatic series appear in the urine under physiological conditions as the result of the putrefaction of substances containing water.

Ortwiler found that bismuth subnitrate in large doses had no effect on intestinal putrefaction; large doses of castor oil produced an increase of the aromatic sulphates. Kast ascertained that neutralizing the stomach with large doses of alkaline carbonates had a very decided and lasting effect in the increase of aromatic sulphates; in hyperacidity of the stomach the aromatic sulphates were diminished.

Morax, in his experiments performed upon animals, found that calomel and iodoform diminished the aromatic sulphates, whereas ordinary doses of calomel given to human beings did not act as an intestinal disinfectant.

Rovighi found that large doses of the terebene group and camphor given to animals diminished the putrefaction to a considerable extent; these compounds administered to healthy persons had very little effect.

Biernecky found that on an exclusive milk diet the aromatic sulphates diminished one half in twenty-four hours.

Winternitz by his experiments has proved that albuminous putrefaction is greatly lessened in the presence of milk sugar, glycerin, and lactic acid. He found that on adding a large quantity of milk to beef extract albuminous putrefaction was greatly diminished.

In experiments performed with dogs, who were first fed on meat, then on a milk diet, it was found that in the former the aromatic sulphates were three times and a half as high as when the latter was given.

According to Carl Schmit, milk sugar is the compound in milk which prevents intestinal putrefaction. He fed dogs on meat and milk sugar and the aromatic sulphates were greatly lessened.

The writer, in order to determine whether casein or milk sugar is the compound which disinfects the small intestine, undertook the following experiment: Casein was precipitated from milk and then washed with hot alcohol until all milk sugar was removed. This diet was given for three days, the total twenty-four hours' urine being saved; the aromatic sulphates were not diminished. When albuminoids are removed from the food and carbohydrates substituted, the putrefaction is diminished largely; this result is brought about in all probability by the starvation of those bacteria which live upon proteids. It is very probable that in the course of intestinal putrefaction there are, besides the aromatic compounds, other unknown chemical combinations which are, perhaps, even more poisonous than the former. Observations have shown that more aromatic sulphates are excreted during the day than during the night. If the subject for experiment receives no water, and we examine the urine, we find the aromatics lessened. It appears from this that drinking causes an increase of the aromatic sulphates, and it is therefore necessary in ascertaining the amount of aromatics excreted to figure on the total amount of the urine that has been passed during twenty-four hours.

Age also has its influence on the excretion of these substances; food also influences their amount. The following experiments with milk, buttermilk, and kumyss were undertaken to show, if possible, what influence they would have on proteid decomposition when performed outside the body. Ordinary putrefaction is the same as pancreatic digestion—that is, albuminoids are first decomposed into leucin, tyrosin, and ammonia, and later the decomposition goes on to oxyacid, phenol, indol, skatol, etc.

Experiment No. 1. Two hundred cubic centimetres of freshly prepared extract of beef were mixed with 500 c. c. of milk, and 40 grains CaCO_3 added to take up all acids formed during decomposition; this solution was placed in a litre flask and diluted to 1,000 c. c. with water; the flask was closed with a rubber stopper containing a glass tube, whose further extremity was immersed in mercury; this allowed the gases formed to pass off without the air entering. The mixture was digested for four days at a temperature of 40°C . At the end of this time the analysis gave the reaction for peptone, but none for leucin, tyrosin, indol, skatol, or phenol. This experiment was repeated two or three times; the digestion was once allowed to continue fifteen days with the same result as above.

Experiment No. 2. The same quantity of milk and CaCO_3 was taken as in the first experiment, with the exception that glycerin extract of pancreas was used instead of beef. This was digested for five days.

The analysis gave the same negative results as in the first experiment.

Experiment No. 3. Five hundred cubic centimetres of buttermilk, 40 grains CaCO_3 , 5 grains saccharated pancreas mixed and diluted to 1,000 c. c. with distilled water. This was di-

gested for twenty-four hours. Leucine and tyrosine were demonstrated microscopically and chemically. Tests for phenol, indol, skatol, etc., were negative.

Experiment No. 4 was a repetition of experiment No. 3. The digestion was allowed to continue for five days. Leucine and tyrosine were found, but no skatol, indol, nor phenol.

Experiment No. 5, kumyss. Four hundred cubic centimetres of beef extract, 40 grains CaCO_3 , and 200 c. c. of kumyss were digested three days; no putrefaction demonstrated. This same experiment was repeated, the digestion continued eight days, the results exactly the same.

Method.—All these analyses were carried out in the following manner, which was taken from Hoppe-Seyler, *Physiological Chemistry*, 1893: The digested material was distilled until one third of the entire volume had passed over (the distillate, which contained phenol, indol, and skatol). The residue was reserved to be tested for leucin and tyrosin. The distillate was then saturated with $\text{KC}_2\text{H}_3\text{O}_2$ and again distilled. Indol and skatol pass over. The residue was saturated with CO_2 and distilled; tested for phenol. The residue left from the first distillate was filtered and concentrated to a small bulk; it was then precipitated with $\text{Pb}(\text{C}_2\text{H}_3\text{O}_2)_2$ and filtered, the filtrate treated with H_2S , which precipitated the lead. It was next filtered through paper, then animal charcoal, concentrated and neutralized with $(\text{NH}_4)_2\text{CO}_3$, and tested for leucin and tyrosin.

Method of Estimating Normal and Aromatic Sulphates.—

1. Normal and Aromatic Sulphates. Take 100 c. c. of the mixed twenty-four hours' urine; add 10 c. c. of HCl and place for fifteen minutes on a boiling water bath; add excess of BaCl_2 and set aside from six to twelve hours; pour off the supernatant fluid and wash the residue with distilled water; then place the precipitate on filter paper of known ash and wash it with distilled water until the filtrate gives no precipitate with AgNO_3 solution. Dry the precipitate in an oven, ignite in a weighed crucible, and burn to ash; add to this one or two drops of H_2SO_4 in order to convert any BaS into BaSO_4 , and again heat to redness; cool the crucible over H_2SO_4 and weigh; this weight, minus the weight of the crucible and ash of filter paper, equals the weight of BaSO_4 .

Then allow the following proportions: $\text{BaSO}_4 : \text{SO}_3 :: \text{weight of BaSO}_4 : x - x = \text{SO}_3$. To find weight of H_2SO_4 : $\text{SO}_3 : \text{H}_2\text{SO}_4 :: \text{weight of SO}_3 \text{ found} : x - x = \text{the normal and aromatic sulphates in 100 c. c. of urine}$.

2. Aromatic Sulphates. Take 100 c. c. of urine and add an equal volume of baryta mixture (two volumes saturated solution of $\text{Ba}(\text{OH})_2$ and one volume saturated solution of BaCl_2); place on a water bath for fifteen minutes, cool and filter. The normal sulphates are in the precipitate. Take 100 c. c. of this filtrate, acidulate with 10 c. c. of HCl , and place for one hour on a water bath; allow to settle; filter through a paper of known ash and wash thoroughly with distilled water and then hot alcohol. Dry in the oven, ignite, and then carry out the same as given above. As this weight only represents 50 c. c. of urine, it is necessary to multiply by two in order to make it represent 100 c. c. of urine. Using the same proportion as under the first one will give the amount of H_2SO_4 combined with aromatic bases; this subtracted from the first answer, the difference is equal to the normal sulphates.

Under normal condition the amount of aromatic sulphates excreted in twenty-four hours is equal to about 0.1 of a gramme. The following table (I) shows the diminished putrefaction after the administration of kumyss; the aromatic sulphates in the third column represent the degree of putrefaction. *a* gives the weight of aromatic sulphates before the administration of kumyss; *b*, twenty-four hours after the administration of kumyss; *c*, forty-eight hours after kumyss; *d*, seventy-two hours

after kumyss; *e*, ninety-six hours after kumyss. All these cases (excepting No. 3, which was a jaundice case) were typhoid.

I. Examination of Urine.

CASE.	Amount passed in 24 hours.	Normal sulphates.	Aromatic sulphates.	Remarks.
No. 1 (a)...	630 c. c.	2.0582	0.1373	Decreased 85.4 per cent.
" (b)...	450 c. c.	1.6083	0.0202	
No. 2 (a)...	960 c. c.	1.9357	0.1829	" 80 "
" (b)...	1,900 c. c.	2.0744	0.0366	
No. 3 (a)...	1,060 c. c.	1.8539	0.1515	" 88.8 "
" (b)...	1,150 c. c.	2.3565	0.017	
No. 4 (a)...	1,520 c. c.	4.1784	0.5178	" 95.5 "
" (b)...	1,790 c. c.	4.4964	0.0232	
" (c)...	1,500 c. c.	2.4957	0.0033	" 99.4 "
" (d)...	1,750 c. c.	3.6697	Nothing.	
" (e)...	1,400 c. c.	3.5466	Nothing.	" 100 "
No. 5 (a)...	550 c. c.	0.7865	0.08305	
" (b)...	560 c. c.	0.7996	0.0616	" 25 "
" (c)...	950 c. c.	1.0276	0.0266	
No. 6 (a)...	1,240 c. c.	2.4986	0.176	" 91.3 "
" (b)...	500 c. c.	1.5084	0.0154	

The weight of the aromatic sulphates estimated before taking kumyss is figured as one hundred per cent.; for example: Case I—(a) the aromatic sulphates are 0.1373, which equals one hundred per cent.; (b) the aromatic sulphates passed after taking kumyss are 0.0202, which is equal to 14.6 per cent., being a decrease of 85.4 per cent.

The antiseptic action of milk depends upon the formation of lactic acid. In kumyss the lactic acid is already formed. Hayem, Lesage, and Thomas report beneficial results from lactic acid on different forms of diarrhœas of children. Hayem, when lactic acid was given in very large doses, could find it in the fœces; all this goes to prove the germicidal effect of lactic acid in the intestines. Having taken fifteen grains of lactic acid in one litre of water, the writer found that there was moderate influence on the excretion of aromatic sulphates—much less than in the use of kumyss. Perhaps this may be accounted for on the ground that the latter also influences normal digestion more favorably, since it contains one per cent. of alcohol and several salts which check fermentation.

II. Examination of Normal Urine, showing the Relative Antiseptic Action of Salol, Turpentine, and Buttermilk.

CASE.	Urine.	Amount passed in 24 hours.	Normal sulphates.	Aromatic sulphates.	Remarks.
No. 1...	Normal.	800 c. c.	3.1753	0.108016	M xx, four times in 24 hrs. Gr. v every 4 hrs. (gr. xx in 24 hrs.). Diet, buttermilk; began 6 hrs. before commencing to save first urine.
" ..	Turpentine.	950 c. c.	1.9549	0.10944	
" ..	Salol.	710 c. c.	2.28265	0.1	
" ..	Buttermilk.	2,380 c. c.	3.22309	0.0691152	
No. 2...	Normal.	780 c. c.	2.24093	0.102017	Same as above.
" ..	Turpentine.	870 c. c.	2.96384	0.09373	
" ..	Salol.	950 c. c.	3.01786	0.100864	
" ..	Buttermilk.	2,350 c. c.	3.26834	0.04638	

These experiments were performed with normal urine, the diet not being materially changed from that taken on the first day of the experiment.

It was found that saline cathartics at first increased the

aromatic sulphates, then diminished them. Calomel administered in large doses for two to three days slightly diminished the aromatic sulphates. Oil of eucalyptus given for three to four days diminishes the aromatic sulphates.

Conclusion:

1. The quantitative estimation of the aromatic sulphates present in the urine is a valuable point in judging the putrefactive changes in the intestines.

2. As the amount excreted varies with the time of the day, it is absolutely necessary to examine a sample from a twenty-four hours' specimen of urine.

3. Kumyss reduces putrefaction to a minimum, is readily assimilated and should be given freely in all cases of intestinal putrefaction.

The writer is under the greatest obligation to Mr. A. Arend, 189 East Madison Street, who furnished all the kumyss for these experiments.

Dr. J. W. Walker, of the house staff, Cook County Hospital, furnishes a clinical report of cases on a diet of kumyss.

The cases referred to in the foregoing table (No. I) were patients in the Cook County Hospital during July and August under the services of Dr. Earle, Dr. Sintzel, and Dr. Turek.

In Case 3 the patient was admitted with a history of having been jaundiced for nine days and had then the usual symptoms of hepatic colic. The urine contained a considerable amount of bile pigment, and the stools were of a pale-gray color. He was kept on a diet of kumyss after the first twenty-four hours, and left the hospital in eleven days, at which time his icterus was rapidly clearing up.

The remaining five cases were of typhoid fever with the characteristic signs and symptoms of that disease. All the patients recovered, Case 1 being the only one with complications, phlebitis, orchitis, and a synovitis of the knee—all on the right side. A plan of symptomatic treatment was adopted in all the cases, none of the intestinal antiseptic medicines being used. After the collection of the first twenty-four-hour specimen of urine, the patients were kept on a diet of kumyss until able to take solid food. Most of them disliked it at first, but after being urged a few times they all acquired a liking for it and took it readily. Each patient received about three quarts in twenty-four hours.

MALTOSÉ VERSUS GLUCOSE.

By R. G. ECCLES, M. D.,
BROOKLYN.

THE physiological reasons for my recently published objections to glucose as a food were, I thought, so well understood by educated men that I did not attempt at that time to amplify them. I was surprised, however, to learn that a number of my acquaintances had got the impression that my reasons given for its condemnation might apply also against prepared foods for infants and invalids and the various malt preparations on the market. It thus became evident that in the minds of even medical men there was still considerable confusion concerning settled

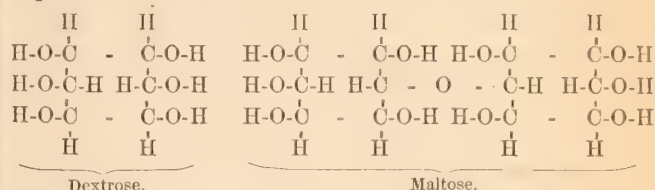
points in the physiological chemistry of starch digestion. Hosea's exclamation of "My people are destroyed for lack of knowledge" may prove to be an apt quotation at this juncture. The misunderstanding of this subject is likely to lead to results fraught with danger to their patients, for it appears that a number of physicians hold to the old notion that the ptyalin of the saliva converts starch into grape sugar, glucose, or dextrose. This error was refuted almost half a century ago, but periodically it is found to crop out in medical literature or enter as a factor into medical polemics.

The first discovery of the production of sugar from starch was made by Kirchhoff in 1811.* He showed that dilute sulphuric acid when boiled with starch converted it into sugar. In 1813 he also discovered that grain, and especially malted grain, contained an albuminous substance capable of producing sugar from starch.† He considered the sugars of these two methods of transformation identical. In 1831 Leuchs found that saliva had the power of changing boiled starch into sugar.‡ In 1833 Payen and Persoz succeeded in separating the amylolytic ferment from germinating barley and to the new product they gave the name diastase.*

In 1845 Mialhe separated the ferment from saliva and called it animal diastase.‖ He believed that the diastase from malt and the new product from the saliva were the same, and that the sugars of both were identical with that produced by boiling with dilute sulphuric acid. It remained for Dubrunfaut, in 1847, to prove the falsity of part of this conclusion. He showed that, whereas the two organic enzymes produced the same sugar, that which was developed by boiling starch with sulphuric acid was quite a different one.△ To the sugar produced by the action of the enzymes he gave the name maltose. His work remained unverified and almost unnoticed till 1878, when Musculus took up the subject, confirming what had been said and adding more to our knowledge in the same direction. Since then this matter has been repeatedly confirmed by a large number of experimenters, but the work of Brown, Heron, and Morris completely set the matter at rest by placing it on a thoroughly reliable basis.◇ This work was done between 1879 and 1885. It was at this time that the proof was discovered of the identity of the products of diastatic and ptyalic digestion, though it was clearly shown that diastase and ptyalin could not be alike. Maltose and not dextrose is the product of the action of the organic enzymes. O'Sullivan has shown us how these two sugars possess different rotatory powers under polarized light and different crystalline forms, and how they reduce Fehling's solution in entirely unlike degrees.‡ Maltose, he has

shown, is isomeric in structure with ordinary cane sugar or sucrose.

The difference between these sugars becomes apparent on placing two graphic formulæ together that contain their elements in proper proportions. The exact structures not having been determined, these are, of course, but fanciful arrangements and are only introduced to facilitate thought. It is quite certain that the true formulæ, if we knew them, would be related in some such manner. Indeed, the fact that the sugars so readily produce oxalic acid on oxidation, points to some such structure as that here depicted as the true one.



The first act of digestion in the human body is that of the enzyme of the saliva upon starch, the product of which we see in maltose and not in dextrose. The importance of this fact will be made clear when we come to consider the successive steps in the assimilation of food. The physiological balance of our bodies can only be properly maintained by the thorough mastication of our food, as much because of this fact as for any reason hitherto assigned. Whoever fails to impregnate what he eats with saliva and its ptyalin is courting dyspepsia by hindering other subsequent acts of digestion. One of the gravest mistakes we have made in the past has been in supposing that the stomach only had to deal with proteids—that within it only albumin, casein, gluten, and the like were disposed of. The fact is that the very first important act performed in the stomach is the digesting of starch. All gluten reaches it enveloped in an insoluble coating like the sugar or gelatin on the outside of a pill. To make way for the digestion of proteids this must be rendered soluble and removed. To do so starch-digesting has to be the first task of the stomach. Following it comes proteid digestion. Digestion is both an alternating and a simultaneous process, and the alternations are not as few as we had supposed. When it was discovered that ptyalin action was arrested by hydrochloric acid, the assumption hastily made was that it had no very important place to fill. We supposed that the conversion of the trifling amount of starch during the act of mastication was all the duty it performed. Believing that gastric digestion began as soon as our food entered our stomachs, and likewise assuming that the hydrochloric acid came at once and destroyed the saliva enzyme, there was no alternative but to believe that Nature had made a gigantic mistake in supplying the mouth with a special ferment of this kind that was neither useful nor ornamental. The facts, however, were not all in, and we were found "reckoning without our hosts." Ptyalin never was intended by Nature to do its digesting in the mouth. We have now discovered that it works with vastly greater vigor in a neutral than in an alkaline medium. As found in the mouth it is alkaline. Shall we hastily assume that this, too, is one of Nature's blunders? On food entering the stomach, the flow

* Schweigg. *Journal*, iv, 108.

† *Ibid.*, xiv, 389.

‡ Wagner's *Handwörterbuch d. Physiol.*, vol. iii, part i, p. 768.

* *Annales de chimie et de physique*, vol. liii (1833), p. 73.

‖ *Comptes rendus des séances de l'Académie des sciences*, vol. xx, part i, page 954.

△ *Annales ch. phys.*, ser. 3, vol. xxi, p. 178.

◇ *Journal of the Chem. Soc.*, 1879 (Transactions), p. 596; *ibid.*, 1885, p. 527.

‡ *Journal of the Chem. Soc.*, second series, vol. x, p. 579.

of acid gastric juice slowly neutralizes the ptyalin. The longer the food has been chewed the more of the alkaline medium is present and the longer it remains in the stomach before reaching a condition of acidity. Its power is exerted with steady but certain acceleration up to the point that acid and alkali balance, when retardation slowly sets in. Nature, then, has evidently made no mistake. Not only is the ptyalin a necessary agent in digestion, but the alkalinity of the saliva is equally necessary and its function a useful one. To it we owe the fact discovered by Velden,* that it takes the stomach three quarters of an hour after the ingestion of food to reach the point where free acid appears. Chittenden, Ely, and Smith have proved the increasing power of the ptyalin up to the point of neutrality, and Haliburton suggests that the acid peptones may retard the ptyalin before free acid appears.† View it as we will, there is about half an hour and sometimes more time given up to starch digestion by the stomach before it can fairly begin the production of peptones. Americans, more than any other people on the earth, are given to "bolting" their food, and as a consequence dyspepsia is a national disease. The ptyalin does not get mixed with the food. The starch is not digested from around the gluten. The pepsin can not do its work, and disease is the consequence. This is the reason why diastase plays so important a part in therapeutics, in spite of the fact that from the old standpoint such treatment was scoffed at by the knowing ones as unscientific. The fact, as it now appears by the very latest developments of physiological chemistry, is emphatically in favor of just this very line of treatment.

To those who, from force of habit, haste, or bad teeth, fail in fully masticating their food and thoroughly impregnating it with their saliva, no safer course could be pursued than to take with their meals a tablespoonful of a good active malt preparation. The higher the diastatic value of the preparation the more efficient it will prove. To such as fail to secrete sufficient ptyalin, because of an atrophied condition of the supplying glands brought on by years of past neglect in the particular here referred to, it would almost seem to be an imperative necessity that they follow this advice if they wish their bodies to be properly nourished. Such treatment helps the gastric juice to do its duty far more effectively than by giving pepsin. As an artificial aid to digestion pepsin fails because it can not get at the gluten of the bread, because it is buried in starch. Digest this starch with added diastase, and the evil is overcome. The pepsin can then accomplish its work.

When the stomach completes its task the ferments of the pancreas are called into use. There are four of them. The amyllopsin takes the place of the ptyalin and digests starch, the trypsin takes the place of the pepsin and digests albuminoids, the steapsin splits up the fats and oils, and an unnamed ferment manifests a curdling power on milk.‡ The product of the digestion of amyllopsin is also maltose.*

From the mouth to the duodenum no trace of the production of dextrose is apparent. Why is this so? Neither maltose nor cane sugar can be assimilated as such. It is only as dextrose or levulose that they are capable of entering the blood.* If, however, the mucous membrane of the intestines in finely divided condition is immersed in starch solution, dextrose results.† The cells of this part of the body have the power of inverting sugar. It is natural on this account to assume that all kinds of sugar are changed into dextrose at this point and are carried into the lacteals or blood-vessels. No such inversion occurs further up. The stomach and upper part of the duodenum seem to be effectually guarded against the production of dextrose. Surely there is some good reason for this. Whether our belief is in natural selection or creation, we must necessarily look for a reason for the perpetuation of this condition of things. We must look upon it as an adjustment of the organism to conditions tending toward its perpetuation. Viewed as such, then, we should expect to discover that for the stomach to absorb large amounts of dextrose would result in injury. A constant amount of dextrose is being supplied to the blood from the glycogen of the liver and from the glycogen of muscle.‡ This dextrose has to be oxidized or it would rapidly increase in the blood, bringing on a condition of glycosuria. The physiological balances always maintained in health make the oxygen supply just adequate to the normal demand here pointed out. Any additional demand would necessarily overtax normal function. If, under such conditions, dextrose is poured into the stomach in large amounts, its direct absorption into the blood puts an unusual strain on the oxygen supply, and the glycogen is dammed back in the liver and muscles, while a whole train of reverse processes is set up the consequences of which we are unable to forecast. Who can say how much of the anæmia, headaches, chorea, and other ailments of school children is due to the eating of glucose candy? Who can tell how many cases of incipient diabetes are developed by the use of inverted sugar? With pure sucrose and maltose, absorption can only occur in the way and at the places Nature has appointed for such a duty. The whole mucous membrane of the small intestines produces an enzyme that has the power of converting maltose into dextrose and cane sugar into levulose and dextrose.*

When sugar is inverted at this place there is no opportunity for it to fill the stomach with putrid or sour food by its remarkable powers of fermentation. No known substance more easily becomes the prey of micro-organisms. In this fact, indeed, lies its chief source of danger to the user. As the stomach is always invaded by such pests carried in both in food and in drink, delayed digestion in the presence of glucose, the principal part of which is dextrose, is very likely to result in sour stomach with its concomitant evils. Syrups that have been adulterated with glucose and preserves that have been sweetened therewith thus become

* *Zeit. physiol. Chem.*, iii, 205.

† Haliburton's *Chemical Physiology*, p. 628.

‡ *Ibid.*, p. 656.

* *Ibid.*, p. 658; Stutzer in *Zeit. physiol. Chem.*, xii, 72.

* Bimmermann. *Pflüger's Arch.*, Bd. xx (1879), S. 201.

† *Proc. of the Royal Soc.*, No. 204 (1880), p. 393.

‡ *Pflüger's Arch.*, Bd. xxiv (1881), S. 28.

* Gamgee's *Phys. Chem.*, vol. ii, p. 416.

a menace to health. Imperfectly masticated food that has not become sufficiently impregnated with ptyalin is in the same manner likely to sour. A dose of bicarbonate of sodium may bring a momentary relief, but is pretty sure to be followed by a speedy recurrence of the evil. The proper remedy to give where such a tendency is known to exist is a dose of diastase to perfect and hasten digestion. This enzyme is best administered in a thick malt extract, where it is found sufficiently concentrated to be of actual worth. But here a danger lurks. Dextrose syrup, under the commercial name of glucose, is only worth from a cent and a half to two cents a pound if bought in large quantities. It is of about the same consistence as a thick extract of malt and could easily be used as an adulterant. A pure malt preparation costs vastly more, so that the desire to mix them is quite tempting to an unscrupulous person. The practical difficulties in the way of detecting such an adulteration are so great that but few would go to the expense or trouble. When the writer had definitely settled upon writing this paper it was resolved that the investigation of the point here raised was important. What would be the use of advocating the advantages of a malt extract to overcome certain evils when the presence of glucose in that very extract would augment the evils sought to be overcome? The easiest way to settle the question was to visit a place where malt extract was manufactured and look out for signs of glucose. Had a factory been near New York where a *low-grade* article was made our choice for a call would naturally have been to it. Fortune did not favor us in this respect. The only manufactory in this part of the country is one having the reputation of supplying the most active diastatic preparation on the market. I visited Yonkers, went to the extensive works of the Maltine Company, and asked to be shown around. On learning who the visitor was the chemist in charge took particular pains to show and explain their various processes. He showed me the barley, wheat, and oats used, the different preparations that they make, and the machinery employed. I examined their vacuum pans, their malt mills with their fine vernier adjustments for cutting, their great stock of coca leaves for making their maltine with coca wine, their agitators, and their bottling machines. He showed me where they assayed the finished product to determine its diastatic value before sending it out.

We went down into the storage basement and up into the garret and, keeping my own counsel, while watching eagerly for glucose, I found none anywhere or anything that indicated its presence in or around the place. The chemist told me that he had lately succeeded in shortening one part of his work three quarters of an hour, and so adding to the diastatic value of maltine, high as it was before. He pointed out what was already a familiar fact to me, the great value of maltine as a nutrient, independent of its diastatic power. Practical, clinical experience of its value is abundant. It contains not only the maltose from the digestion of its starch, but the albuminoids of wheat, oats, and barley besides. Chemical analysis places it in the front rank of digestive agents, and a most careful examination of its composition fails to reveal the presence of glucose.

THE TREATMENT OF CORNEAL ULCER BY THE GENERAL PRACTITIONER.*

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CORNEAL ulcer, although not necessarily dangerous to the integrity of the eyeball, is nevertheless, even in its simpler forms, fraught with most serious consequences as regards the preservation of good visual acuity. This is especially true where the ulcer happens to be centrally located, as the slightest nebulous opacity formed in the process of healing will seriously affect the power of vision. Unfortunately, the great majority of these cases occur among young children, and if the treatment is not properly applied in the beginning of the attack there will result a limitation of vision that may influence the whole after life of the individual. In many cases the services of a specialist are not available, because the sudden onset of the attack, or its occurrence in a locality remote from our medical centers, will not permit of any delay in securing relief; and hence, as the general practitioner is, perforce, first called upon to treat these cases, I think a brief *résumé* of the ætiology and proper methods of treatment may prove to be of some interest on this occasion.

For our present purposes we may simply divide all corneal ulceration into two classes: (1) simple ulcer and (2) sloughing ulcer. The latter variety this paper does not propose to discuss. The former may manifest itself under somewhat protean types, but originating in the same underlying cause. We may have the most superficial, grayish ulceration; we may have an indolent, necrotic ulcer that pursues a sluggish course and shows but little inflammatory reaction; we may have a transparent or faceted ulcer; we may have single or multiple erosion ulcers, where there is friction of the lids and perverted ocular secretions; and lastly, we may have the condition known as phlyctenular keratitis. So long as these conditions manifest themselves under the simpler forms, just so long is the general practitioner competent to care for and treat them; but whenever any of these apparently harmless conditions pass into the more dangerous form of sloughing ulcer, or threaten to perforate and injure the integrity of the eyeball, then the care of a specialist is undoubtedly demanded.

Aside from these local conditions, the general symptoms will present so characteristic a clinical picture that the diagnosis can not be mistaken. The child will have an intense fear of light, hiding its head in a pillow or in the folds of its mother's dress. There is excessive lachrymation and often some muco-purulent discharge. The nostrils are filled with viscid secretions that may even hang down on the lip. The excoriations at the outer angle of the eye and around the nostril show how acrid and irritating these secretions are. There may be an acneous eruption of the face. The surface of the whole body appears relaxed, the skin is bathed in perspiration, and the hair on the head is frequently matted with moisture.

Those who have carefully followed the ophthalmic

* Read before the Pennsylvania State Medical Society, May, 1894.

literature of the past few years have possibly noticed the growing tendency to ascribe the origin of corneal lesions to associated disturbances in the lacrymo-nasal apparatus. I think we may safely say that fully ninety per cent. of corneal lesions take their origin directly from pre-existent pathological processes affecting the intranasal tissues and secretions. Careful inspection will almost invariably reveal associated lesions of the eye and nostril of the same side, which is most markedly shown where the disturbance is confined to a single eye and the corresponding nostril.

Constitutional dyscrasias do not count for as much in the pathogenesis as they were once thought to do. A strumous diathesis, of course, lowers the tone of the system, and thereby exposes the eye to these microbic attacks. Unhygienic surroundings and the poor dietetic regimen that usually accompanies such conditions will undoubtedly add a genetic factor to the predisposing cause. While we are convinced that the immediate cause is purely local (lacrymo-nasal), we must not overlook the importance of the more remote cause, which we consider to be a perversion of the gastro-intestinal functions. Chronic constipation, errors in diet, the excessive use of coffee or tea, and over-indulgence in sweets and pastry are the most potent factors. In children, especially, these indulgences sooner or later sap the vitality and create a peculiar irritability of the whole gastro-intestinal tract. By reflex action the nasal condition sympathizes with the disturbance in the stomach, and thus indirectly the train of symptoms may be traced back from the stomach to the eye itself. Accompanying the gastric disturbance is a peripheral vaso-motor relaxation which allows the surface of the body to be constantly bathed in perspiration. This is probably explained by the well-known interrelation of gastro-duodenal lesions to those of the skin; as, for example, duodenal ulcer complicating burn of the skin, or *vice versa*, urticaria from duodenal acidity, and the erythematous manifestations caused by eating strawberries or shellfish.

To return to the local conditions: The ocular disturbance may be purely reflex from the nose; it may result from decomposition of the confined tears from simple obstruction of the duct; or it may originate from the regurgitation of septic secretions which carry the microbes up through the contracted lumen of the lacrymal duct, but do not allow the tears to travel downward, because of the accumulation of viscid secretions in a previously obstructed passage. Granting now the presence of this septic material in the ocular *cul-de-sac*, there is required only a lesion in the superficial corneal epithelium—whether from friction of the lids, from maceration, or from traumatism—in order to have infection occur and the ulcerative process immediately inaugurated.

Even in the exanthemata or other fevers, where the cornea is liable to a *direct* attack from the disease itself, there is a still greater danger from this possible infection by perverted secretions, since every febrile disturbance perverts the normality of the nasal secretions, and septic contamination of the eye may easily follow.

As previously pointed out, the great danger to vision is due to the central location of the ulcer, and unfortunate-

ly a large percentage of corneal ulcers are central. If the cause of these central ulcers should be carefully inquired into, there would doubtless be no question as to their lacrymo-nasal origin. The central location of the ulcer may be accounted for by the fact that in the act of winking the eyelids come together over the cornea and carry ahead of them any pathological *débris* which is present, and as they recede leave behind them a *drift* of this septic material lying in the exact center of the cornea. Here it sooner or later causes the corneal tissue to break down into an ulcer. This occurs most frequently in cases where there are mild atrophic lesions of the nose, which are usually accompanied by a peculiar, musty odor of the nasal secretions.

Treatment.—Having thus clearly stated our dictum as to the nasal origin of this affection, the treatment resolves itself into the simple matter of treating the nose, together with the application of a mild, soothing lotion to the eye itself. While making no pretensions to being a specialist in the treatment of diseases of the nose, I am nevertheless constrained to act on this conviction as to the nasal origin of corneal ulcerations and to apply the remedy accordingly.

As to the treatment of the nose, I have found it very necessary to use an alkaline and antiseptic solution to cleanse the nasal chambers. Dobell's solution is valuable for this purpose, but the best form is that known as Dr. Goodman's compound tablet of sodium silicofluoride,* which can be dissolved in water as needed. This solution may be used two or three times a day in a constant spray atomizer. A syringe or bulb nasal douche will be preferable for use in the case of very small children.

The most important therapeutic measure, however, is the local application of compound tincture of benzoin (long known as Turlington's balsam) to the hypertrophied nasal mucous membrane, daily at first, and then on alternate days. My attention was first called to the advantages of this drug by Dr. S. MacCuen Smith some five years ago, and since that time it has proved itself to be, *par excellence*, the one therapeutic agent that will most promptly reduce the turgescence and hypertrophied turbinates, and restore the perverted secretions to their normal condition. It is at once antiseptic, astringent, depleting, and stimulating.

This application is best made with absorbent cotton wrapped on the end of a wire applicator,† dipped into the solution, and inserted far back into the nostril, until the lower portion of the mucous lining is well coated. It is then swept under the lower turbinated as it is withdrawn, in order to help reduce any swelling around the nasal orifice of the lacrymal duct and its terminal fold, known as the valve of Hasner. If the patient is a child, it should be laid upon its back on the mother's lap, with its head between the knees of the physician, when the application can be quickly made. If the pharynx seems much congested, a similar application of the benzoin will facilitate recovery. Of course, if the disturbance arises from any more serious naso-pharyngeal lesion, as polypus, septal spurs, enlarged

* These tablets are best prepared by Llewellyn, 1410 Chestnut Street, or Marshall, Sixteenth and Race Streets, both of whom also manufacture a very excellent form of atomizer.

† Made by Gemrig, 109 South Eighth Street, Philadelphia.

tonsils, or adenoid vegetations, the patient should be promptly referred to the laryngologist for relief.

There may be some little smarting following the benzoïn application and a copious flow of secretion, but this will only last for a few minutes. If, however, you desire to be somewhat milder and more elaborate in your treatment, you may apply a series of four solutions:

1. Cocaine, gr. xxx in aq. dest. $f\frac{3}{4}j$, to relieve pain and constrict the relaxed mucous membrane and blood-vessels.

2. Antipyrine, gr. xxx in aq. dest. $f\frac{3}{4}j$, to hold the tissues down for several hours, and thus maintain the comfort of physiological breathing.

3. Tinct. benzoïn comp. as the important corrective and remedial agent.

4. Camphor and menthol, $\bar{a}\bar{a}$ gr. xxx in fluid albolene $f\frac{3}{4}j$, to pleasantly stimulate and leave behind a cool, soothing sensation.

After this treatment has been used for some time the cocaine and antipyrine may be stopped, and the benzoïn (or benzoïn and camphor menthol) continued as long as it seems to accomplish its purpose. A persistence in the use of the treatment after the subsidence of the ocular symptoms may prevent a future recurrence of the ulcer, the liability to which remains so long as the nasal lesion persists. The treatment outlined above is equally efficient for the relief of nasal disturbances when associated with ocular lesions other than those of the cornea. It is also useful for the relief of an attack of acute rhinitis, particularly when associated with acute catarrhal conjunctivitis in the relation of a causal factor.

For the local treatment of the eye an antiseptic and soothing lotion should be employed, consisting of:

R Sodii bborat. gr. v;
Ac. boric. gr. x;
Aq. rosæ (or aq. camph.), } $\bar{a}\bar{a}$ $f\frac{3}{4}j$.
Aq. destillat., }

M. et sig.: Drop in the eye freely four times a day.

The eye should be carefully examined by separating the lids, and atropine instilled at the first visit. The atropine need not be continued if the pupil dilates freely. If there is marked blinking and fear of light, cocaine, gr. ij, and eserine salicylate, gr. $\frac{1}{8}$ to $f\frac{3}{4}j$, may be added to the lotion or used in a separate solution. Hot stupes are often highly beneficial; they may be applied to the eye for fifteen minutes three or four times a day. Calomel or iodoform may be dusted on the ulcer. Fresh cod-liver oil is often useful as a local application. A pressure bandage will sometimes give relief.

The diet should be carefully regulated. My invariable formula for children is, "*No tea, no coffee, no cakes, and no candy.*" Of these, *coffee* is by far the most harmful. It exhausts the vitality of the patient and irritates the whole alimentary canal more than any other article of diet. If the bowels are constipated a few doses of calomel and soda will usually regulate them. The phosphate of sodium, as recommended by Dr. H. C. Wood, is an excellent corrective, saline aperient, and cholagogue of great efficiency. The granular form of this salt is probably the most soluble.

An excellent tonic for these cases is that known in the traditions of Wills Hospital as "Dr. Goodman's mixture":

R Hydrarg. bichlor. gr. j;
Liq. pot. ars. $f\frac{3}{4}ij$;
Tinct. ferri chlor. $f\frac{3}{4}iv$;
Acid. phosph. dil. $f\frac{3}{4}j$;
Syr. limonis. q. s. $f\frac{3}{4}iv$.

M. et sig.: Take a quarter to a teaspoonful in water after each meal (the dose to be regulated according to age and circumstances).

The relaxed condition of the skin is best relieved by daily baths in salt water, accompanied by friction of the skin or massage, and followed by an alcohol sponging or a rubbing down in sweet oil or sweet-almond oil. Improved hygiene and a nutritious diet are necessary prerequisites to a permanent recovery. Proper exercise is often of the highest remedial value. We may gain a point by combining exercise with play, as in the dancing class or in rambles through the country, both of which are especially attractive to children.

If this peculiar ocular irritability should persist in spite of the treatment instituted, or if corneal perforation is threatened, or if there is an excessive tendency toward sloughing keratitis, the case should be promptly referred to the specialist for cauterization of the ulcer, canthoplasty, or rapid dilatation of the lacrymal duct, one or all, as his best judgment may dictate.

This plan of treatment as above outlined has been thoroughly tested for several years in Dr. Goodman's clinic at the Wills Hospital, with which I have the honor to be associated, and also in our clinic at St. Joseph's Hospital, and, I may add, the uniform success of this method of treatment has insured its permanency.

To briefly summarize:

Simple corneal ulcer is a purely local inflammatory process, arising *chiefly* from infection by septic secretions and originating in lacrymo-nasal lesions.

To epitomize the treatment:

1. Treat the nose locally with tinct. benzoïn comp. and the use of a cleansing spray.
2. Use a mild antiseptic eye wash to the eye locally, a mydriatic if necessary, and hot applications when indicated.
3. Regulate the diet, give salt-water baths, and improve the hygiene generally.

1504 WALNUT STREET.

DESCRIPTION OF AN ARTIFICIAL EYE

INTENDED FOR THE STUDY OF OPHTHALMOSCOPY
AND THE OBJECTIVE DETERMINATION OF AMETROPIA.*

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As far as practicable, this model has been constructed in imitation of the human eye.

The contrivance is composed of two telescopic brass

* Read before the American Ophthalmological Society, at the third triennial meeting of the Congress of American Physicians and Surgeons, May 31, 1894.

tubes of about four centimetres and a half in length and two centimetres and a half in diameter each. These are so constructed as to allow the smaller one to slide into the other. At the far extremity of the anterior and larger tube there is an adjustable cylinder lens that can be made of any desired strength. This lens, which is a centimetre in diameter, is made in such a way that it can be rotated around a degree index which is engraved upon the border of the circumference of the barrel. This index register runs from zero to one hundred and eighty degrees. Just inside of this lens in the tube there is an accurately centered iris diaphragm. The diaphragm, which is perforated, is connected with a graduated screw head that is situated upon the outside of the barrel. The graduations upon the screw head are gauged in such a manner that each index movement represents an increase of one millimetre opening in the center of the diaphragm. More deeply situated in the tube there is a carefully ground bi-convex lens of twenty dioptries strength. This lens represents the main focusing apparatus of the contrivance. Fastened to the anterior part of the underneath portion of the barrel there is a sliding arrangement of heavy wire, which, with a small hook at the posterior part of the barrel, makes either a firm base upon which the contrivance can stand or a means by which the apparatus may be suspended.

The wire base is so gauged that when it extends to its greatest length out from the anterior face of the barrel the distance measures about twelve millimetres.

The smaller tube has a double index running the greater part of its length upon its upper face. The indices, starting from zero, ran sequentially backward to "6" along an "M" line and forward to the same amount on an "H" line. To the back face of the tube there is an arrangement by which an adjustable flat disc can be screwed into position. It contains a colored representation of the normal fundus oculi engraved upon enameled paper.

This model, which has been constructed upon the principle involved in Queen's student's eye demonstrator, that was made upon the suggestions of Dr. William Thomson, of this city, embraces more of the salient features of the human eye in the least possible compass than any other form of similar contrivance.

Starting with a focal distance of five centimetres, which is marked upon the smaller tube as zero, emmetropia is reached. By gradually withdrawing the smaller tube the exact equivalents of axial myopia are obtained, this being registered by the numbers upon the linear index engraved upon the tube. By slowly pushing the smaller tube into the larger one from the point of registry of emmetropia, increasing amounts of axial hypermetropia are obtained. If it be desired to study astigmatism, the cap containing the cylindrical lens can be adjusted to the face of the large tube, and any axis of least and greatest astigmatism of the strength of the lens employed in the cap* can be easily obtained by revolving the cap around the graduated circle

upon the circumference of the larger tube. To this astigmatism, supposing it be studied while the fundus level is placed at the emmetropia mark, any degree of ametropia up to the full extent of the instrument's registration can be added, remembering that in the minus series, or those that are designative of near-sightedness, the strength of the cylinder lens used must be subtracted from the amount of the degree of myopia that is registered.* Should desire be had to study the relative elevations and depressions of localized areas in the background of the eye, as, for example, suppositional swellings of the optic disc as found in papillitis, or supposed cupping of the nerve head, as is so often seen in glaucoma, the observer's gaze can be limited to the varying appearances of the optic disc when the tubes are approximated to one another and when they are separated to different degrees. Here the amount of correction that is necessary with the ophthalmoscope to produce proper definition of the optic disc, or, in fact, any other part of the organ that can be so studied when the smaller tube is slid backward and forward in the larger one, can be employed to designate the degree of change of antero-posterior position of the area under consideration from its supposed normal plane.

In this study it should always be remembered that when the tubes are approximated the relative position of the disc, as compared with that when it is situated at the mark which is intended for emmetropia, is equivalent to the projection of an object forward into the chambers of the eye, as in intra-ocular swellings. Further, it must be understood that when it becomes necessary to separate the tubes, the abnormal position is equal to the recession of an object, as, for instance, in pathological cuppings of the optic nerve head.

In the ordinary model the appearance of the supposed normal eye ground is given. If desired, this picture can be used as the basis upon which any one, if an artist, can sketch and paint any variety of pathological change desired. The student is thus enabled at a moment's notice to have proper ophthalmoscopic representations under almost the same conditions as when they are studied from the living subject. The plan, therefore, if carefully tried, will give far better ideas of the true nature of the ophthalmoscopic appearances of intra-ocular changes than in any other form of graphic reproduction. In reality the technique becomes almost the same as when it is done with the patient, and the findings are rendered quite similar to those which have been sought to study. To offer additional difficulties in the work, and thus give much greater ability in afterwork, especially among old subjects, the pupillary opening can be diminished to extremely small areas, and the studies repeated under these circumstances.

Besides giving practice in the frequently repeated technique that is necessary to obtain any degree of expertness in the handling of the ophthalmoscope for the production of proper and adequate results in both of these plans, there

* In the ordinary model made for the writer a convex cylinder of one dioptry's strength has been used.

* Of course, it must be understood that upon account of the slight separation of the two lenses in the tube there must be a variation from the exact equivalent in the readings.

remains a third and most important method of precision which can be practiced with this little model of an eye. This, which is the ordinary fundus-reflex test, can be employed by either having the artificial eye placed upon some object that will bring it upon a level with the supposed eye of the patient, or having it suspended from some point so as to bring it to a convenient height for observation.

Practically, in all these procedures the method is the same as would be pursued were the artificial eye a living organ.

Mr. Edward B. Fox, of the firm of Queen & Co., of this city, has kindly undertaken the manufacture of this model, and is now able to furnish any number of them at extremely low prices.

SOME UNUSUAL NERVE MANIFESTATIONS IN A YOUNG SUBJECT.

By EVERETT M. CULVER, M. D.

In this recital I can offer no explanation for the uncommon disturbance of the nerve centers. I shall therefore give a simple statement of the case as briefly as possible:

This patient at the time of his first visits to me was about eighteen years old. He was small in stature, but exceedingly athletic and well developed; his family history was all that could be desired. He had never had syphilis or gonorrhœa, never masturbated, nor had he been addicted to cigarettes and cocktails, as is the too common custom among the precocious *fin de siècle* youth. On account of the very singular manifestation of his trouble, he was exceedingly nervous and depressed. His history he gave to me as follows:

A year or two before I first saw the patient (1886), as the following history would indicate, he had suddenly become extremely constipated, or obstipated. Movements of the bowels had been accomplished with the greatest difficulty—accomplished only by pressing the abdomen with the hands, straining, cathartics, etc.

He noted after each of these painful movements that he was losing a sticky, white fluid from the urethra. This frightened him more than the bowel trouble, and it was for this supposed loss of semen that he consulted a physician, who treated him for spermatorrhœa and had not recognized that the straining at stool was causing the escape of prostatic fluid. Under this gentleman's treatment he had his meatus cut and sounds passed to his bladder. Purges were advised to be taken frequently, which he said "wore out his poor bowels."

The patient was then recommended to me for treatment by a friend.

I found his symptoms as described above. His business was that of a dealer in hops (the import of this statement will be apparent in the subsequent history). At once, upon hearing the nature of his symptoms, I clearly saw that the so-called spermatorrhœa was but a symptom (prostatorrhœa) from the pressure of the distended rectum aggravated by the forced passages and straining upon the prostate gland. I therefore directed my examination to the rectum, having first, however, explored the urethra with a No. 30 F. sound, which passed without trouble to the bladder.

When an attempt was made to pass an oiled finger up the rectum, success was attained after much difficulty. When the finger reached a point about two inches and a half above the sphincter ani, there occurred immediately a spasm of a portion

of the circular muscular fibers of the rectum, which felt like one of those strong red rubber rings one puts over the end of the ribs of an umbrella to keep them in place. The bite of this muscular spasm was so great as to cause an intense pain in my finger. In order to clear the bowels I suggested to him the use of enemata as a relief for this condition, but after he told me of the failure of such means I saw they would be useless.

He said in employing injections that he lies on his side with hips elevated; uses a fountain syringe; has tried all sorts of fluids, warm or cold, bland, oily, or stimulating, each with the same effect, or rather want of effect. A quart or more of water flows into and through his colon as far as the cæcum. Then "he plays with it," pushing it back into the ascending colon with his palm; then suddenly removes the pressure and hears it gurgle and flap back to the cæcum. After a few moments he attempts to have a movement. A little water flows out, but so soon as the fæces begin to come down, the spasm of the rectum closes the passage and he has to begin the procedure all over again, until he thinks he has "fooled the rectum" into passing a sufficient amount of dissolved fæcal matter.

This method of cleansing the bowels he used daily for weeks, and has at last become discouraged and extremely nervous.

I saw that an examination under an anæsthetic was needed. He was put in the lithotomy position, and when thoroughly under the influence of ether the finger and the speculum could be passed into the rectum at will, meeting with no resistance whatever.

A strong light was thrown into the rectum, the walls of which were carefully examined by Dr. Manning and myself, but no cause whatever could be found as the reflex cause of the spasm. With a fountain syringe we washed out an enormous quantity of fæcal matter.

As the patient was under ether I concluded to stretch the sphincter and did so.

The good effects of this procedure lasted a few weeks, when he was again as bad as ever. I next had a short cannula and obturator of hard rubber made, so that the latter could be taken out when the patient had a movement and then replaced, so that the edges of the instrument should not cut the rectum, the whole held in place by appropriate bands; the desired effect to be achieved being twofold—to furnish a patent opening, also to continually keep the rectum dilated.

As one may readily imagine, the patient was unable to wear such a cumbersome and irritating apparatus, so he was obliged to discontinue its use after a few days' trial.

By this time I perceived that whenever I advised certain drugs or a new procedure likely to give him relief, such mental comfort always gave him a complete relaxation of the spasm, so that for a time he had comfortable and regular movements. As soon, however, as the mental impression wore away, or the novelty of the new method began to grow stale, he relapsed into the old condition. In this way I promised relief by means of a number of drugs, also by cauterizing the prostate with nitrate of silver, passing sounds, the use of electricity, advising different forms of exercise—rowing, bicycling, horse exercise, etc.

These mental and physical occupations gave relief for a time, and then, having exhausted my resources, I sent him to sea. While on the ocean the bowels were normal in action; as soon as he landed, however, fæcal movements became almost impossible.

After two years and a half spent in these psychical attempts at cures, he became more despondent than ever and begged for an operation, even a colotomy, saying that he would rather go through life with an opening to his bowels than he could always depend upon, than to suffer the mental and physical discomforts he had been obliged to endure during the past years.

At his request I operated upon him in December, 1890, again assisted by Dr. Manning.

We dilated the rectum and excised a portion of the mucous membrane for about a finger's breadth and three inches long from the posterior wall of the rectum. We then divided the muscular coat almost down to the connective tissue. The cut was afterward kept well dilated by plugs, bougies, etc. The wound healed nicely and without contracting the rectum. The relief obtained by this operation, no doubt, was purely psychical. In the light of riper experience and by deductions from later data I can not imagine that the operation *per se* at all enlarged the passage or divided a stricture which did not exist, except when spasmodically irritated by the actual passage of feces, or the fear in the patient's mind that he would not be able to have a movement. The desired result from this operation, however, lasted over two years, when he again had trouble from the same cause.

Having exhausted all the resources I could devise, I sent him abroad, where he consulted Professor Küssmaul, of Heidelberg, who advised him to use an enema of hot olive oil, giving him an apparatus with very complicated thermometers, stop-cocks, tubes, lamps, measures, etc., also elaborate directions for use. I have not seen or consulted Professor Kussmaul concerning this case, but I feel sure that he recognized the mental condition and that the elaborate outfit and the minute directions were directed to the psychical elements of the case more than to the purely local condition.

The celebrity of his comforter and the soothing hot oil lubricated both mind and body for a long time (he thinks over a year or more), when the old trouble again returned.

In this dilemma circumstances came to my aid. The death of the hop buyer for the firm (of which his father was the head) caused the patient to be sent in that capacity to the far West—to Washington and Oregon, to spend the greater part of the year in the hop fields and hop warehouses.

During the ensuing two years thus employed he was entirely free from his bowel trouble, but contrived to get a new mental and physical disorder, for which he came back to New York after having in vain sought relief from the medical talent in the cities of the far West.

I am at a loss what to call the condition for which he now consults me. The psychical element is evidently again present, for as he approached New York, where he felt he would gain relief, the skin lesion (?) almost ceased to annoy him. This form of peripheral irritation is now the new manifestation of his ills. It is from the feeling of assured relief that he will get from my treatment that the attacks that *I have seen* are light compared to the extent (area) and the inconvenience they have given him heretofore. Briefly stated, it is that about a year ago last September, after the rainy season had set in, he was obliged to go about a great deal in the wet. Suddenly, without previous warning, he felt a heat and burning in his perinæum; upon looking with a glass at the region he saw a red welt extending both sides to the buttocks; this swelling rapidly increased, going down both thighs. He describes the appearance as being, first, a red blush; then follow wheals, white and hard, which resemble "hives"; these rapidly coalesce until the skin is enormously thickened. An irregular border of bright red always pushes forward as the process advances (the preliminary blush), and then follow in sequence the above-described symptoms. These manifestations are accompanied by an intense itching and burning. After a few hours the hardness subsides, leaving the skin greatly thickened, red, swollen, and tense, sometimes enough so as to be shiny. This swelling lasts for a day and then completely disappears (the redness remains, however, for a day or two longer, then fades away), leaving no

trace whatever, not even scaling, as one would suppose from the severity of the lesions (?). The burning persists while the redness lasts.

These attacks come at irregular intervals, sometimes a few days apart, again with weeks intervening. The amount of body involved varied: sometimes starting from the perinæum it extended bilaterally to both thighs and legs to his feet, so that for one to two days he could not wear his boots. During other seizures the arms and shoulders were involved, sometimes bilaterally at others on a single side. One of the most frequent sites of selection, however, has been one beginning at a point under the left eye extending in an upward and backward direction rather than downward, so that the eyelids, the superciliary region, and the cheek and ear have been so swollen that the eye was closed. Another favorite "initiative point" was from the upper lip, which swells so rapidly and enormously as to make the face look like a huge snouted beast, almost closing the nose and mouth. The only attacks I have seen have been of the left eye and of the mouth; also one small involvement of the skin on the internal surface of the left thigh; all these, however, in a lesser degree than above described.

The patient tells me that the physicians he consulted in the West were confident that the disease was erysipelas, and gave local and constitutional treatment for the same. The only relief he had from the sensory symptoms was from the use of a lotion of chloroform and hydrocyanic acid. Since he has been under my care for this last manifestation of nerve irregularity I have given the case considerable thought, as I was puzzled to know whether this last trouble was from local irritation or from trophic disturbances, since the rectal spasm was evidently of purely nervous origin.

In treatment I took the precaution to apply local remedies in case the disease should be from spores.

I remembered, when he gave me the history of the skin trouble, to have seen in the *American Journal of the Medical Sciences*, about the year 1886 or 1887, a description of a skin lesion called by the writer angio-neuro-œdema. I thought this name applicable to this case and so called it in my notes. I have looked in Dr. Foster's dictionary but do not find this word.

In Pepper's *System of Medicine*, vol. v, p. 1253, under the head of Vaso-motor and Trophic Neuroses, there is a brief mention of similar conditions of the skin and of allied diseases. As before mentioned, the patient has been in the *hop business* for a number of years. His occupation has brought him constantly in contact with masses of dried or fresh hop buds, in the warehouses or in the hop fields.

The test of the hop, I understand, is the color and smell to an experienced eye and nose. I have asked myself the question in regard to this case, if the lupulin odor or pollen could have any connection with the trophic spasm or vaso-motor disturbances in accounting for this man's condition.

Considering the case in this light, I ordered him to buy fresh underclothes and to completely discard all clothes and articles that he had used in the West, to bathe in a bichloride solution, and to use ichthyol-sublimate soap. Internally, Hamilton's tonic, conjointly with the use of spinal douches given by an expert, who shall regulate the force and temperature of the water as seems best fitting to the case.

These methods, combined with the mind-cure, have relieved him from this last affection for a number of months.

The former bowel trouble seems also to have "ceased from troubling," and it is possible that a perfect vaso-motor and nerve tone may in time be completely established.

36 WEST THIRTY-FIFTH STREET.

THE NECESSITY OF PROMPT OPERATIVE TREATMENT IN APPENDICITIS.*

BY JOHN B. WHEELER, M. D.,
BURLINGTON, VT.

MR. PRESIDENT AND FELLOWS OF THE BURLINGTON CLINICAL SOCIETY: The object of this paper is to earnestly recommend *prompt operative interference as the safest and best treatment for appendicitis*, as the surest means of avoiding the dangers to which a patient is exposed by the disease.

The principal dangers from appendicitis are:

1. *General Peritonitis*.—This may result directly from perforation of the appendix, or, if an abscess forms, it may rupture into the peritoneal cavity and thus cause a general inflammation. In the first case the peritonitis immediately follows the first symptoms of trouble. In the second, it may occur at almost any period of the disease. In either the result is almost invariably fatal.

2. *Suppuration*.—Even if pus does not invade the peritoneal cavity, it may penetrate the parietal peritonæum and come to the surface, or burrow anywhere and everywhere in the retroperitoneal connective tissue, causing all the evils attendant upon chronic suppuration. Or it may perforate the intestines, the rectum, the bladder, or the vagina. These cases, though not directly fatal, in many instances end in death, in many others in chronic invalidism, sometimes associated with faecal fistula; while those which recover do so after a long and tedious convalescence, and are liable to a return of the disease with all its dangers.

3. *Recurrence*.—In many cases which recover without operation, where no pus has formed, or where it has formed and has been absorbed, the appendix is left in a state of chronic inflammation, or so distorted and compressed by adhesions that its vitality is impaired. In either case the patient is subject to recurrent attacks of acute inflammation, which are liable to lay him up at any moment, rendering it impossible for him to place any dependence on his physical condition, and putting his life in peril over and over again.

Now, although many cases of appendicitis recover without any of these complications, we have no way of telling at first which cases will do so and which will not, except in those fulminating attacks where the immediate onset of general peritonitis shows that the peritoneal cavity was at once infected, and that there is every probability of a fatal result. A case may run a mild course for a week or two, and then suddenly show symptoms of suppuration; or an abscess may exist for days without any special indication of its presence, and then discharge into the peritoneal cavity. It is this treacherousness of the disease which calls for prompt operative interference before there is time for the development of such conditions, which, it is needless to say, greatly enhance the difficulty of the operation and diminish the chances of its success.

By a prompt operation I mean an operation done *as soon*

as the diagnosis of appendicitis is satisfactorily established. Such diagnosis usually is not hard to make. When a sudden and severe attack of abdominal pain, accompanied or closely followed by vomiting, is succeeded, after a shorter or longer interval, by tenderness in the right iliac fossa (usually greatest over McBurney's point), rigidity of the right abdominal muscles, and rise of temperature (perhaps very slight), it means appendicitis. If we also find a tumor in the right iliac fossa, the diagnosis is emphasized. Cases sometimes occur in which the symptoms are very obscure; but, as a rule, the presence of the above-mentioned group is sufficiently evident. Of course, as has been said, many well-marked cases get perfectly well under medical treatment, without complications or subsequent recurrence; but under medical treatment a good many more are left with chronically inflamed and adherent appendices, subject to annoying and dangerous recurrent attacks, while others develop abscesses, whose dangerous consequences have already been mentioned. Finally, some twenty per cent. of medically treated cases die; and let it be repeated that at the outset it is impossible for the most skillful diagnostician to say which course a given case of appendicitis will take.

Now, as the dangers of appendicitis are due to the presence of the diseased appendix, it is evident that they can be prevented if the appendix is removed early enough. By such a procedure the dangers of the disease are exchanged for those of the operation. The dangers of the operation are death and hernia, both of which are common enough when the operation is done in the later stages of the disease. The prompt operation, however, has about the same mortality as the ordinary exploratory laparotomy—*i. e.*, less than five per cent. The causes of death after appendicitis operations being shock and sepsis, the prompt operation affords the best means of avoiding them, because it is done when the patient is in the best condition to withstand shock and before septic material has time to accumulate. At such a time the appendix is easily found and removed, because it is not buried in adhesions and bathed in pus, as is the case at late operations. As for hernia, that complication often follows a late operation, where a large abscess cavity is found which has to be kept open and drained for many weeks. But, after the prompt operation, where the incision is short and can be firmly closed throughout its length by different layers of buried sutures, hernia is almost unknown.

The late operation is really an operation for the results of appendicitis, and not for appendicitis itself. As some cases are not seen until the results are well under way, we are sometimes forced to operate late, if at all. But in such cases the conditions are so much less favorable than in the beginning of the disease that we can not expect nearly as good results as from an early operation. It is sometimes advised to wait until suppuration has begun before operating. One great objection to this plan is that we can not always tell when suppuration begins. The pus is too deep-seated for fluctuation to be detected, and, contrary to the rule in other parts of the body, the temperature is a very unreliable guide as to the formation of pus in the perito-

* Read before the Burlington Clinical Society, June 29, 1894.

næum. Of course, we often find suppuration accompanied by the usual signs, and yet a general purulent peritonitis may exist with little or no rise of temperature, or a considerable abscess may form in the right iliac fossa without any chill or marked fever. Another reason for not waiting for signs of suppuration is that perforation often takes place before suppuration. Many operations have been done where the symptoms were not urgent, but where, nevertheless, a gangrenous appendix was found, just on the point of perforation into the peritoneal cavity. And, even if we could diagnosticate with certainty the existence of pus, why should we postpone operating until the patient gets into a condition where the operation is far more dangerous than it was at first? The danger of sepsis is much greater in the presence of pus than in its absence, and the danger of operating in the presence of the results of appendicitis—such as suppuration, adhesions, peritonitis, and sepsis—is much greater than when the operation is done for appendicitis alone, before the results have had time to materialize.

If the rule to operate as soon as the diagnosis is made is always followed, some patients will be operated on who would have recovered perfectly without operation. If medical treatment is always followed, a much larger number of patients will die who would have been saved by prompt operative interference. Moreover, the recovery list of the medically treated cases will include many which afterward recur. If we reserve operative interference for cases whose symptoms imperatively demand it, we shall now and then lose a patient whose appendix has carelessly neglected to display danger signals before perforating or suppurating.

The report of the following case, on which I operated nineteen days ago, is interesting as showing what serious lesions may exist when the symptoms are not severe:

The patient, a grocer's clerk, twenty-one years old, remarkably strong and healthy, was taken on the morning of June 8th with severe abdominal pain and vomiting. I saw him for the first time on the morning of June 9th. He had had two camphor, opium, and lead pills the previous evening after an attempt had been made, with very little success, to move his bowels with two compound cathartic pills. At my first visit he was quite comfortable, although there was some pain and tenderness all over the right abdomen, the tenderest point being an inch above and internal to the anterior superior spine. There was no rigidity of the right abdominal muscles and no abdominal distention. Temperature, 101°. Further administration of opiates was forbidden, the abdomen was covered with absorbent cotton soaked in hot bichloride solution and covered with oil silk, and three grains of acetanilide three times a day were ordered. For the next twenty-four hours he was comfortable, except for a sharp attack of abdominal pain late in the afternoon. A soapsuds enema, administered at once by the attendant, was followed by a free defecation and relief of pain. Evening temperature, 102°. Two small dejections during the night. Next day, June 10th, the morning temperature was 102°. The patient was not suffering greatly, but was very uncomfortable and restless. The tenderness was rather greater than on the day before, and was more marked at McBurney's point. The right abdominal muscles were quite rigid, and a tumor could be indistinctly felt in the right iliac fossa.

The patient was taken to the Mary Fletcher Hospital and, after a consultation of the staff, an operation was performed at 3.30 P. M., about fifty-seven hours after the appearance of the first symptom. All the consultants agreed to the operation, but some thought that, in view of the mildness of the symptoms, there would be no harm in waiting longer. In point of fact, there was not a severe symptom about the case, especially when we consider that the patient had had no opiate except the two grains of opium which he had taken thirty-six hours before the operation. But he had a fairly typical history of appendicitis, and on this day had begun to show the combination of tenderness in the right iliac fossa, greatest in the region of McBurney's point, with rigidity of the right abdominal muscles. A tumor also was beginning to form. On operating, a short, inflamed, thickened, adherent appendix was found, turned upward under the external half of the colon, gangrenous in several places, and with two perforations near the tip from which fecal matter was just beginning to exude. The appendix was only partly walled off from the peritoneal cavity. It lay at the bottom of a shallow cup, which would soon have overflowed. It was removed and was found to contain two fecal concretions of about the size of small peas. The patient's temperature dropped to 99° the next morning and to normal the morning after, where it has remained ever since. His recovery has been uninterrupted. He has been sitting up for several days and will begin to walk about tomorrow.

Now, here is a case for which, if the symptoms could have been trusted, medical treatment would have been all that was required. And yet this patient, whose highest temperature was only 102°, and who, without any abdominal distention, had only a very moderate amount of pain, right iliac tenderness and rigidity, and a little ill-defined swelling just beginning in the right iliac fossa, had a gangrenous, perforated appendix and was in imminent danger of his life.

The objection to prompt operating is that it occasionally involves an unnecessary operation. The objection to postponement of operation and to medical treatment is that they frequently involve an unnecessary death, to say nothing of the matter of recurrence. The first combination seems to me the preferable one. We often see cases where we sincerely regret that no operation was done, or that the operation was not done earlier. But I have yet to hear of a case of appendicitis where the surgeon was sorry that he had done a prompt operation.

A patient with an inflamed appendix is in much the same condition, so far as danger is concerned, as a child who is playing with a loaded revolver. If it explodes and kills him, it is not much of an excuse to say that you did not take the thing away because you did not suppose it was loaded.

The Death of Dr. Reid Alexander, of Topeka, Kansas, a graduate of the Medical Department of the University of Pennsylvania, class of 1885, occurred on October 8th, of perforation of the bowel, at the age of thirty-three years, eleven months. At the time of his death Dr. Alexander was the president of the Topeka Academy of Medicine and Surgery. During the nine years of his active professional life in Topeka he had built up one of the finest and largest practices in the State, and enjoyed the honor and respect of both the profession and the laity.

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THE MARINE BIOLOGICAL LABORATORY AT WOOD'S HOLL.

THE *Journal of the American Medical Association* for October 20th publishes an interesting article by Dr. C. S. Bacon, of Chicago, who describes the aims and methods of this institution and suggests how it can be of use to the medical profession. Although marine laboratories have been in existence only for about twenty years, he says, their objects are well known to all who have to do with morphological and physiological functions. Professor C. O. Whitman is quoted as saying, in an article in the *Atlantic Monthly*: "The ocean is now regarded as the original home of life on this planet, and its present inhabitants furnish records of life histories and evolution phases which are absolutely indispensable to a deeper insight into the phenomena and laws of life." It may be added, says Dr. Bacon, that for purposes of instruction marine forms can be studied in their natural abode more easily and economically than land animals, and especially is this true of the study of their embryological and larval stages of development.

The laboratory at Wood's Holl differs in one important respect from other seaside laboratories, such as the well-known station at Naples. Our American laboratory combines the function of a station for research with that of one for instruction, while that at Naples is exclusively for original investigation. Any one who intends to enter upon any line of research, but is unprepared in the details of technique, may acquire such preparation in the school at a great saving of time and energy. The school is also made use of by teachers who wish to keep up their knowledge of biology and the methods of study. For their benefit classes have been organized in vertebrate and invertebrate anatomy, embryology, morphology, comparative physiology, and botany. The class in embryology studies the fertilization, segmentation, and early stages of development of various pelagic fish eggs, with the variations produced by securing abnormal conditions of pressure, rupture of cell membrane, etc.; it learns the method of killing, staining, imbedding in paraffin and celloidin, and reconstruction. Some time is also given to the study of the holoblastic eggs of sea urchins and amphibians. One of the most important features of the course is the series of lectures and seminars, with discussions of the vital questions of biology, such as the structure and nature of the cell, the questions of heredity and homology, etc.

The institution is not under the control of any school or sect, but is national in its scope and organization. Its trustees and instructors are from the faculties of Harvard, Brown, Yale, and Columbia, the Universities of Pennsylvania, Chicago, and

Michigan, and other widely separated schools. The school is supported by donations from friends of scientific research and by fees from the students. The courses in which instruction is given are \$50, and the investigator's rooms are \$100, for the season. The laboratory is open only during the summer months, as there is at present no provision for heating the building, but an effort is soon to be made to secure sufficient funds to erect permanent buildings and provide an endowment that will make the institution secure.

Dr. Bacon suggests that teachers of anatomy in medical colleges should go to Wood's Holl and take the course in comparative vertebrate anatomy for the season of 1895. It will be under the direction of a corps of instructors of national reputation, and the animals dissected for the practical work will be of the most typical nature (*Amphioxus*, the shark, the skate, and an amphibian). The most novel and improved methods of microscopical and histological research will receive special attention.

MINOR PARAGRAPHS.

INJUSTICE TO AN INJURED PHYSICIAN.

THE case of Dr. A. M. Phelps, as set forth by him in a letter published in this issue of the journal, seems to be an aggravated example of the indignity that may with impunity be heaped upon a man whose behavior under exasperating circumstances does not quite please those in whose power it is to do him an injury. The exculpatory testimony that Dr. Phelps says he can bring forward is quite unnecessary; his course of life in this community is well known to be such that none of his professional brethren in the city will for a moment entertain the idea that the insinuation that he was under the influence of drink on the occasion in question had the slightest foundation in fact. For those who do not know him personally, however, there may be need of our assurance in the matter, and we give it as a slight palliation of the undeserved treatment met with by Dr. Phelps.

AN OUTBREAK OF BERI-BERI IN THE RICHMOND
LUNATIC ASYLUM, DUBLIN.

DURING the past few weeks a few cases of a singular disease have appeared among the insane inmates of this asylum. The first few cases seemed to be simple dropsy dependent upon a non-specific cause. This dropsy attacked the lower extremities and occasionally became general, and the patients succumbed to attacks in other organs, such as the lungs. Sometimes the dropsy disappeared and was followed by loss of muscular power in the extremities. About seventeen deaths had already taken place at the time this article was written. The number of inmates attacked increased, and up to Saturday, October 13th, a hundred and fifty of the lunatics had been laid up. Beri-beri is a well-known disease which prevails in India, in Japan, on the Malabar coast, etc., and is generally considered to be due to overcrowding and want of cleanliness. The Richmond asylum is extremely overcrowded, and the outbreak is the first recorded which has occurred in Europe and attacked Europeans. The affection has come on so insidiously, and some of the cases are so slight and easily overlooked, that it is possible others may have occurred which have escaped notice. Dr. Norman, resident medical superintendent of the asylum, is of the opinion that the erection of temporary buildings for the relief of over-

crowding, as well as for the isolation of sufferers from the epidemic, will be necessary.

THE PURITY OF MALT PRODUCTS.

WHATEVER may finally come to be thought of glucose as an article of diet, in the present state of opinion the substitution of that substance, wholly or in part, for any malt preparation is quite inexcusable. That being the feeling of the medical profession on the matter, it is exceedingly gratifying to find so competent an investigator, and one so well known, as Dr. Eccles declaring, as he does in an article published in this issue of the *Journal*, that he has searched in vain for any establishment in the vicinity of New York where he could observe certain processes of manufacture of alleged malt products that would lead to objectionable features in the finished article. We take it that Dr. Eccles's statement refers not alone to the substitution of glucose for more desirable alimentary substances, but also to all other errors of preparation, so far as the present state of our knowledge admits of their being guarded against. If we are right in this construction of what he says, the community is certainly to be congratulated.

ITEMS, ETC.

A Medical Library Association has recently been organized in Grand Rapids, Mich. The purpose of the association is the formation of a reference library upon medicine and the allied sciences. The new organization starts with a membership of about fifty, composed not alone of physicians, but of dentists and pharmacists as well. One of the features of the association will be the admission of non-residents to membership, whereby for a small annual fee physicians outside of the city may avail themselves of the advantages of the library. A competent librarian will be secured and the most approved methods of cataloguing and indexing will be made use of. Books and journals are being liberally given by persons interested in the project, and the success of the enterprise is said to be assured. The following officers have been elected: Dr. G. K. Johnson, president; Dr. S. G. Milner, vice-president; Dr. W. A. Dorland, treasurer; Dr. Reuben Peterson, secretary.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from October 21 to October 27, 1894:*

KIEFFER, CHARLES F., First Lieutenant and Assistant Surgeon, will be relieved from duty at Fort Assiniboine, Montana, upon the return to that post of MUNSON, EDWARD L., First Lieutenant and Assistant Surgeon, from duty in the field, and will then report for duty at Fort Buford, North Dakota.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending October 27, 1894:*

AYERS, J. G., Surgeon. Detached from the Navy Yard and Hospital at Portsmouth, N. H., and ordered to his home to await orders.

DU BOIS, F. J., Medical Inspector. Ordered to the Navy Yard and Hospital at Portsmouth, N. H.

BREATHWAITE, F. G., Assistant Surgeon. Ordered to temporary duty at the Naval Hospital, New York.

EVANS, S. G., Passed Assistant Surgeon. Detached from the Naval Hospital, New York, and ordered to the Naval Hospital, Mare Island, Cal., for temporary duty.

FIGOTT, M. R., Assistant Surgeon. Ordered to appear before the Naval Examining Board at the Navy Department for examination preliminary to promotion.

Society Meetings for the Coming Week:

MONDAY, November 5th: New York Academy of Sciences (Section in Biology); German Medical Society of the City of New York; Morrisania Medical Society (private), New York; Brooklyn Anatomical and Surgical Society (private); Corning, N. Y., Academy of Medicine; Utica, N. Y., Medical Library Association; Boston Society for Medical Observation; St. Albans, Vt., Medical Association; Providence, R. I., Medical Association; Hartford, Conn., Medical Society; South Pittsburgh, Pa., Medical Society; Chicago Medical Society.

TUESDAY, November 6th: New York Obstetrical Society (private); New York Neurological Society; Buffalo, N. Y., Medical and Surgical Association; Elmira, N. Y., Academy of Medicine; Ogdensburg, N. Y., Medical Association; Syracuse, N. Y., Academy of Medicine; Hudson, N. J., County Medical Society (Jersey City); Androscoggin, Me., County Medical Association (Lewiston); Baltimore Academy of Medicine; Medical Society of the University of Maryland (Baltimore); Hampden, Mass., District Society (Springfield).

WEDNESDAY, November 7th: New York Academy of Medicine (Section in Public Health); Harlem Medical Association of the City of New York; Society of Alumni of Bellevue Hospital, New York; Medical Microscopical Society of Brooklyn; Medical Society of the County of Richmond (Stapleton), N. Y.; Penobscot, Me., County Medical Society (Bangor); Bridgeport, Conn., Medical Association.

THURSDAY, November 8th: New York Academy of Medicine (Section in Pædiatrics); Society of Medical Jurisprudence and State Medicine, New York; Brooklyn Pathological Society; Medical Society of the County of Cayuga, N. Y.; New York Physicians' Mutual Aid Association (annual); South Boston, Mass., Medical Club (private—annual); Pathological Society of Philadelphia.

FRIDAY, November 9th: Yorkville Medical Association (private), New York; Medical Society of the Town of Saugerties, N. Y.; Brooklyn Dermatological and Genito-urinary Society (private); German Medical Society of Brooklyn.

SATURDAY, November 10th: Obstetrical Society of Boston (private).

Letters to the Editor.

AN UNJUST ACCUSATION AGAINST A PHYSICIAN.

NEW YORK, October 30, 1894.

To the Editor of the New York Medical Journal:

SIR: In the daily papers of last Thursday and Friday appeared sensational reports of my appearance in the Jefferson Market Police Court as complainant against a man who I believed had robbed me. The injustice which this publication has done me is of so grave a nature that I beg you to print the actual facts of the case, which are as follows:

At about 3 A. M. Thursday morning I left my house to answer a messenger call to West Forty-second Street. I went directly there, arriving about 3.30. I left there at about 5 A. M. Arriving in Seventh Avenue, I stopped at a public house and ordered a sandwich. While paying my check at the cashier's desk I was jostled by three men, and a roll of bills which I had returned to my pocket was taken by one of them. The man ran out upon the street and I quickly followed. I called a policeman, and together we started in pursuit of the fugitive, who sought refuge in a public place one or two blocks above. I identified the man and caused his arrest. I went to the station

house with the policeman and his prisoner and made my charges against him. A little after eight o'clock I appeared against the prisoner in Jefferson Market Court, before Justice Hogan. I was asked by the justice if I was drunk at the time of the robbery. I indignantly and truthfully answered "No." The policeman was then ordered to make the charge against the prisoner. In his written statement I found the following: "Defendant was arrested on the complaint of Dr. Phelps, who had the appearance of being drunk and was under the influence of liquor." I quietly asked the policeman to charge me with being drunk, and to sign his name to it. When he declined to do so, I tore up the statement, not knowing that it had been signed by the justice—if it had been. The justice then held me in \$200 bail for contempt of court. By permission, I went for bail to the house of Dr. George Evans, 49 West Thirty-ninth Street, and soon returned. The justice imposed a fine of five dollars and discharged me.

In support of the foregoing I can furnish affidavits as follows:

1. From my patient, showing that I had not been drinking and was not intoxicated when I left the house, soon after 5 A. M.

2. From Dr. W. O. Plimpton, my medical associate, showing that I was not intoxicated immediately before I went to the police court; and

3. From Dr. Evans, showing that I was not intoxicated thirty minutes after the trouble in court—however excited I may naturally have been at this time.

With this brief presentation of the case, showing that I was assaulted and robbed while in the performance of professional work, such as calls a physician to any part of the city, I will add nothing more, but will leave the whole matter to the judgment of the reader.

A. M. PHELPS, M. D.

APOCYNUM CANNABINUM.

LOS ANGELES, CAL., October 22, 1894.

To the Editor of the *New York Medical Journal*:

SIR: In the issue of the *New York Medical Journal* of October 13th Dr. J. L. Lowrey, of Neola, Iowa, claims priority in the administration of *Apocynum cannabinum* in valvular lesions of the heart. As early as in 1884, while I was practicing in New York State, Dr. Thomas F. Rochester, of Buffalo, in consultation in a case of valvular insufficiency complicating Bright's disease, advised the infusion of *Apocynum cannabinum* and stated that he had used the medicine for many years in valvular lesions and with very beneficial effects in resulting dropsy. Dr. Rochester also used the medicine in his own case during his last illness, his death resulting from Bright's disease in 1887.

WILLIAM H. DUKEMAN, M. D.

Proceedings of Societies.

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNÆCOLOGISTS.

Seventh Annual Meeting, held in Toronto, Ontario, September 19, 20, and 21, 1894.

The Second Vice-President, Dr. GEORGE F. HULBERT, of St. Louis, in the Chair.

(Continued from page 441.)

Ligation of the Uterine Arteries for the Cure of Fibroid Tumors and Checking Hæmorrhage.—Dr. W. B. DORSETT,

of St. Louis, read a paper with this title. The object of this paper was to establish the author's priority as well as originality in ligation of the uterine arteries for the cure of fibroids. He had made observations during December, 1889, and January and February, 1890, and had reported a case of atrophy of the genitalia and described the technique of the operation of ligation of the uterine arteries for the cure of fibromatous growths in a paper read before the St. Louis Medical Society on May 17, 1890, which had been published in the *St. Louis Courier of Medicine*.

Remarks on the Surgical Treatment of Intussusception in the Infant, based on Two Successful Cases.—This was the title of a paper by Dr. HENRY HOWITT, of Guelph, Ont. In it he recommended early abdominal section as being the best method of treatment to reduce the high mortality rate of intussusception in early infancy. Of the two cases cited, one child had been, at the time of the operation, under three, and the other under six, months of age. In regard to the steps of the operation, among other things he advised a small median incision, evisceration, reduction by pressure on the apex of the intussusceptum while the intussusciens was drawn in the opposite direction, and forcing the contents of the ileum into the colon before returning the intestines into the abdomen.

The Treatment of Distention of the Falloppian Tubes without Laparotomy and Removal.—Dr. FRANK A. GLASGOW, of St. Louis, said that this paper was intended to bring before the profession a method of curing tubal distention by means of intra-uterine treatment, in contradistinction to laparotomy and removal. By this means the uterine ends of the tubes were made more patulous, and a discharge took place from the tube through the uterus. He called attention to the fact that the tubes, as far as his observation went, were always pervious at the outer extremity of the cornu; hence, when removing them, we must always clamp them before cutting. The obstruction must be within the uterine wall, probably in the endometrium. Gonorrhœal inflammation was not an adhesive inflammation, and hence it did not follow that the tubes had a true atresia following this inflammation. His opinion was that the closure was due to a swelling of the endometrium, and hence a closure at the uterine end took place. When this inflammation and swelling were overcome by pressure and antisepsis, the tubes became patulous again. The intra-abdominal pressure would cause fluid in any pendent portion of the tube to ascend into the uterus. The procedure could be carried out in three different ways: First, by gradually packing with gauze, without anæsthesia. Second, by rapid dilatation of the cervix and packing with gauze after curetting. This was done under anæsthesia. Third, by his own method of dilating by means of antiseptic or sterilized elm-bark tents. These tents were small strips of elm bark made just long enough to enter the cervix completely and not press on the fundus. They should be kept in an alcoholic solution of bichloride of mercury (1 to 4,000), and have a short string attached by means of which they might be withdrawn. They were partially broken in a number of places for the purpose of making them more pliable. They might be dipped into glycerin or water just before their introduction. These tents might be used when it would be impossible to pack with gauze. He had treated twenty or more patients during the past year, and did not recall one in which there had not been some discharge from the tent. All the patients had been either cured or very much benefited.

Inflammatory Disease of the Uterus and Appendages and of the Pelvic Peritonæum.—Dr. WILLIAM W. POTTER, of Buffalo, read a paper with this title in which he recalled the well-known fact that the pathology of pelvic disease had been

entirely reconstructed since 1860, and that now we had come to regard inflammation of the pelvic peritonæum as generally symptomatic of disease of the ovaries, or Fallopian tubes, or both. Mr. Tait, within the last ten or twelve years, together with men who had worked abreast of him—some of whom were members of this association—had driven out the theory of pelvic cellulitis that for so long had held sway, and now perimetritis and parametritis had been dropped from the gynecological vocabulary. The struggle had been a long one, but abdominal surgeons had demonstrated the truth of this proposition—viz., that pus originating outside of the tubes or ovaries in the non-puerperal state was a very rare thing. The largest number of women in the consulting rooms of gynecologists were those suffering from pelvic inflammation or its residues; hence the importance of the subject under discussion could not be overestimated. But he asserted that it was only within the past seven or eight years that anything like uniformity of opinion as to the causes and proper treatment of pelvic inflammation had been reached. Now, just as we were beginning to agree as to the essentials governing these cases, we were told by a number of gentlemen, who called themselves conservatives, that these diseases did not demand operation, but that they could be cured in most instances by tentative measures—such as diet, rest, electricity, and the like. By denouncing the work of abdominal surgeons as unnecessary mutilation, and stigmatizing it as castration or unsexing women, they had created a panic among the medical journals that was reaching far into the ranks of the profession. The effect of this was to turn back the wheels of time and stay the advance of progress, with harmful results to suffering women. It must be admitted that these so-called conservative men were clever, which made their subtle and dangerous doctrine all the more damaging in its results.

Dr. C. A. L. REED, of Cincinnati, discussed the clinical history of inflammatory disease of the uterus and appendages and of the pelvic peritonæum; Dr. L. S. McMurtry, of Louisville, the causation and pathology; Dr. James F. W. Ross, of Toronto, the diagnosis and prognosis; and Dr. M. Rosenwasser, of Cleveland, the treatment, along with Dr. A. Vanderveer, of Albany, Dr. J. Henry Carstens, of Detroit, and Dr. Joseph Price, of Philadelphia.

Pus in the Pelvis and Abdomen; its Diagnosis and Treatment.—Dr. JOSEPH HOFFMAN, of Philadelphia, read a paper with this title in which he said that pus in the abdominal and pelvic cavities had been treated and considered with far more leniency than pus anywhere else in the human economy. It was the tramp manifestation of all disease. He considered briefly the various organs in which pus made its appearance, and in the order of frequency he mentioned the kidneys, the appendix vermiformis, the tubes and ovaries, the liver, the pancreas, and the spleen. Each case should be treated according to the demands it made and according to its complications. There was no rule in doing an ideal operation; ideal work was that which gave the best results. The surgery of the abdomen was a work of self-denial, of trial, of unexpected complication, and of lurking disaster.

Hysterectomy for Cancer of the Uterus was the subject of some remarks by Dr. E. W. CUSHING, of Boston.

Personal Experience with Pus-tubes; when to Operate, how to Operate, and the Results of Operation.—This paper was read by Dr. JAMES F. W. ROSS, of Toronto.

Congenital Diaphragmatic Hernia.—Dr. H. T. MACHELL, of Toronto, contributed a paper on this subject in which he reported two cases.

A New Operation for the Radical Cure of Inguinal and Femoral Hernia.—This paper was read by Dr. C. A. L. REED,

of Cincinnati. The operation which the author had devised was as follows: The incision in inguinal hernia was made from a point two inches above Poupart's ligament, midway between the anterior superior spinous process of the ilium and the spine of the pubis, obliquely downward and inward as nearly as possible consistent with the access of the inguinal canal to a point at the base of the scrotum. The dissection was then carried into both scrotal and pelvic cavities. The protruding viscera were reduced and carefully inspected after being brought out above. The sac was carefully dissected from its scrotal connections and reversed by invagination. It was then opened by two incisions, one toward the pubes, the other toward the ilium, thus making an anterior and a posterior flap. The cord was dissected loose and placed in the canal and denuded of its peritonæum at its outer angle. The internal ring was closed by several interrupted sutures, these sutures being applied beneath the peritoneal flaps formed by splitting the sac, care being taken that, in the closure of the ring, undue pressure should not be brought to bear upon the cord. The posterior peritoneal flap was now excised, the stump being ligated if there was any necessity for doing so. The anterior flap was carried across the now obliterated internal ring and stitched by interrupted sutures to the posterior parietal peritonæum. The external ring was closed by passing a number of sutures through its pillars externally to the cord, which was fixed in the internal (pubic) angle of the outlet of the canal. The incision into the abdomen was closed by interrupted figure-of-eight sutures, the internal loop embracing the peritonæum and the aponeuroses of the transversalis and of both oblique muscles, and the external loop embracing the superficial fasciæ, fat, and skin. These sutures should not be more than three quarters of an inch apart. The incision into the scrotum might be closed in the ordinary way. Drainage should not be employed except in the presence of marked oozing or obvious infection.

(To be continued.)

AMERICAN SURGICAL ASSOCIATION.

Annual Meeting, held in Washington on Tuesday, Wednesday, Thursday, and Friday, May 29, 30, and 31, and June 1, 1894.

The President, Dr. J. EWING MEARS, of Philadelphia, in the Chair.

(Continued from page 52.)

Methods of Teaching Surgery was the title of a paper by Dr. JOHN S. BILLINGS, of the army. There were two classes of students, he said: 1. Those who were presumably to become general practitioners. 2. Those who wished to specially fit themselves for surgical work. For the first class the work should be divided between the professors of pathology, of surgery, and of clinical surgery and demonstrations. Such students should be taught diagnosis and the best methods of treatment of the injuries and surgical diseases which the general practitioner was oftenest called upon to treat.

Taking up the question, "How are these subjects to be taught?" we found that there were five principal methods: didactic systematic lectures, recitations, demonstrations and practical instruction by means of manikins, cadavers, and animals, theoretical clinical lectures in the amphitheater, and practical clinical instruction in ward classes.

In the old-fashioned type of medical school the professor of surgery taught the principles of surgery, gave considerable attention to surgical anatomy, and was as well the teacher of clinical surgery. At the present time, in a large medical

school, the subject of surgery was subdivided among a number of teachers, and under these circumstances the difficulty was to avoid useless repetitions and embarrassing contradictions, and at the same time cover the whole field of surgery. There should be a professor of pathology, and the relations between him and the surgeon should be intimate and friendly, while each should be independent of the other. As regarded the teaching of surgical anatomy by a teacher distinct from the professor of surgery and the professor of anatomy, there was considerable difference of opinion.

Clinical teaching was the most attractive to the average student and was often the most useful to him, because he remembered it better, but, as a rule, clinical material was not available to cover the whole field, and it was therefore necessary to add some systematic didactic teaching. This didactic teaching might cover the whole field, the clinical teaching illustrating the didactic lectures. In this way the student had the benefit of the repetition. Undoubtedly the more clinical instruction of the right kind that could be given, the better for the student and for the school. There was no doubt as to the great utility and popularity of teaching to small sections or ward classes. In employing this method care must be taken that the people did not get the idea that in a teaching hospital the interests of the patients were not as fully consulted as they should be.

Recitations and quizzes were excellent methods of teaching for the majority of students, but were well adapted only to small classes. It appeared more desirable that they should be applied to the clinical teaching than to the didactic lectures.

In the clinical and didactic lectures too much of the history and literature of surgery should not be included, but every school should have a course of lectures on these subjects, including bibliographical methods.

The man who intended to be a surgeon should not only make a special study of surgical anatomy, but do a considerable amount of practical laboratory work in bacteriology, pathological histology, and experimental pathology and physiology. Much of the operative technique could be learned on animals, but much of it required work on the cadaver with frequent repetition. Of great importance was residence in a hospital.

The author suggested that perhaps too much time was devoted to embryology and general morphology as a basis of the study of anatomy. The study of anatomy should be kept up throughout the course and made to figure in the final examinations.

In concluding, the author asked: "Would it not be good policy for a first-class popular medical school to limit the number of pupils which it will accept to its capacity to give them proper instruction in laboratory work, in practical anatomy, and in clinical medicine and surgery?"

The Teaching of Surgery was the title of a paper sent by Dr. JOHN CHIENE, of Edinburgh. In discussing this subject one must begin, he said, with a warning; the personal equation relating to himself and the traditional equation relating to his school must be allowed for and discounted.

The teaching of surgery resolved itself into two heads: 1. The systematic consideration of general principles illustrated by clinical examples. 2. A clinical (bedside) opportunity given to observe, to use, and to educate all the faculties, physical and psychical. Under either head the teacher must be a learner; the student must be a teacher. The teacher had constantly to warn the student against a blind belief, and at the same time he had to speak most decidedly in giving his opinions. The practice of surgery, to be successful, must be dogmatic.

It had been objected to systematic lectures that now that we had books there was no need of lectures on any subject. Those

who held these views could never have known the stimulus of speech; could never have felt the electrical impulses passing between hearer and speaker. The method of teaching surgery in Edinburgh was then described. In conclusion, the writer wished to add a word with reference to the teacher of surgery. He believed in a fallow time; in a time of rest from mental activity. The best rest was change of scene. He suggested the advantages that would accrue from an interchange of chairs in the great English-speaking educational centers. In this way once in seven years a teacher would for a season leave his alma mater and speak to the students of another school. Or the fallow time might take another aspect: give a teacher a session off every seven years and let him do in it what seemed to him good.

(To be continued.)

Miscellany.

The New York Academy of Medicine.—At the last general meeting on Thursday evening, November 1st, a paper on Intralobular-Occlusion Jaundice was to be read by Dr. William H. Porter.

At the next meeting of the Section in Pædiatrics, on Thursday evening, November 8th, cases will be presented and a paper on the Antitoxine Treatment of Diphtheria, based upon a Series of Cases Treated at the Willard Parker Hospital, will be read by Dr. A. Campbell White.

At the next meeting of the Section in General Surgery, on Monday evening, November 12th, patients will be presented, and Dr. Royal Whitman will exhibit pathological specimens and apparatus. Dr. Francis H. Markoe will read a paper entitled A Clinical Contribution to the Surgery of Intestinal Obstruction, and Dr. Willy Meyer, a paper on An Improved Method of the Radical Operation for Carcinoma of the Breast.

The Health Department and the Prevention of Infectious Diseases.—The following report, signed by Dr. Hermann M. Biggs and Dr. A. H. Doty, was approved by the Board of Health of the City of New York at a meeting held September 26, 1894:

We desire to direct the attention of the Board of Health to the necessity for the adoption of some more adequate means to prevent the extension of contagious disease in tenement houses and apartment houses, and particularly for the enforcement of isolation of persons sick with these diseases. The methods which have been long employed in the Health Department—*i. e.*, frequent visitation and instruction by department inspectors—have been found to be only partially effective. It has been the custom for years in cases of contagious disease for the inspectors of the department to visit the families of the sick persons, inform them as to measures of disinfection and methods of isolation, and at the same time to notify other families in the house of the existence of a case of contagious disease in a given apartment. This method of giving publicity to the case and of warning other occupants of the house is ineffective in the accomplishment of the desired end—*i. e.*, the complete isolation of the patient and the prevention of further infection. Notifying all the inmates of a large tenement is a very difficult matter, and, if notified, experience has shown that they soon forget the existence of illness in the house. Repeated inquiries have demonstrated the fact that frequently many of the inmates of a house where there is a case of contagious disease do not know of the existence of any sickness.

Further than this, this method fails entirely to protect strangers or visitors who may go to the house or apartment. Ladies in search of servants have been repeatedly found in houses or in apartments where cases of contagious disease were present, and servants who have been living with families where there are cases of contagious disease, on obtaining situations frequently go to their employer's house carrying infection with them; or, when relieved from duty for an afternoon or evening, visit families where there are cases of contagious disease and not infrequently carry infection back to the houses in which they are employed. Very commonly washing or various kinds of sewing is secretly done by other members of the family in apartments where such cases are ill, and the garments thus infected on the premises are later returned to the owners. In small shops business is sometimes carried on, and in one of several instances recently a number of cases of diphtheria were directly traced to an infected candy store.

Notifying inmates of the house is ineffectual further, because it has been found that, as a rule, intercourse of families in tenement houses is not with others in the same house but with families which live in other houses, and the latter are entirely unprotected by the methods at present followed.

It has seemed to us after careful consideration of this subject that the desired object would be best obtained by the placarding of apartments in tenement houses where cases of contagious disease exist, and we therefore have the honor to recommend that hereafter the chief inspector of contagious diseases be authorized, at his discretion, to placard apartments in tenement houses where there are cases of contagious disease. The following considerations may render still more apparent the necessity for this action:

1. Under the present conditions it is impossible to prevent strangers and visitors from entering apartments where there are cases of contagious disease, and they or their clothing thus frequently become infected and either they contract the disease themselves or they transmit it to others. These strangers or visitors are usually not aware of the existence of disease in the house or apartment, and unwittingly expose themselves and act as media for the dissemination of the disease. If apartments were placarded, this means of dissemination would be prevented.

2. In diphtheria, as has been repeatedly and abundantly shown by the investigators of this department, patients are often apparently well long before they are free from the infectious agents, and in spite of repeated warning from department inspectors these patients, especially when children, mingle with other children and thus transmit the disease to them. This is one of the most common and important means for the dissemination of diphtheria and it is of no less importance in scarlet fever and measles, as in the latter diseases desquamation frequently continues many days after the patient has apparently quite recovered.

3. There are at present no means by which other inmates in tenement houses can know when convalescent cases of contagious disease have ceased to be dangerous. They can only be governed by appearances, which, as we have seen, are deceptive. If apartments where cases of contagious disease existed were placarded, isolation would be enforced by the other occupants of the house until the department inspectors allowed the placard to be removed.

4. The moral influence of such placards both upon the inmates of the apartments, the inmates of the house, and strangers or visitors to the house would be of as great service in enforcing isolation and preventing extension of disease as the visits and instruction of our inspectors. It has been found impossible, even where daily visits were made by medical inspect-

ors, assisted by the sanitary police, to enforce the isolation of children convalescing from diphtheria and scarlet fever after the serious symptoms have disappeared. It is undesirable at such times, unless absolutely required, to remove such patients to the hospital, and yet in the eruptive fevers this is the period of the disease when there is greatest danger of transmission to others.

During the last year we have had a serious epidemic of diphtheria to deal with. The number of cases reported weekly during the last months, however, has steadily decreased. The schools have just now opened, and it seems to us that the most strenuous efforts should be made to prevent a new outbreak of the disease or its reintroduction to the schools. This measure would be of undoubted service in accomplishing the desired object.

We would recommend, therefore, that placards should be nailed to the outside doors of the apartments in which cases of contagious disease are present, when in the judgment of the chief inspector of contagious diseases this course seems to be desirable, and that the placards should bear the following inscription, differing as to the name of the disease in question and as to color. The color for diphtheria should be white; for scarlet fever, red; for measles, blue:

"*Diphtheria*.—All persons not occupants of this apartment are notified of the presence of diphtheria in it, and are warned to avoid entering it until this notice is removed. The persons sick with diphtheria must not leave the apartment as long as this notice remains here.

"The removal or defacement of this notice is forbidden.

"By order of the Board of Health,

"....., *President*.

"....., *Secretary*."

For some months in certain classes of tuberculosis the system of placarding apartments has been authorized and employed by the Health Department, and has proved very satisfactory in the attainment of the object desired. The only objection apparently to be urged against this measure is that the inmates of the apartment may object to the publicity thus entailed. This, however, is exactly the object which the measure is justly and properly designed to subserve, and is, in our opinion, the strongest argument in favor of its adoption.

Ergot of Rye as an Oxytocic.—In the September number of the *Bristol Medico-chirurgical Journal* there is an article on this subject by Dr. J. G. Swayne, of London, who remarks that ergot of rye is a remedy whose powers as an oxytocic were formerly much believed in and overestimated. Of late years, however, in this respect, it has gone out of favor, and is now seldom employed until after labor, in order to check hæmorrhage. This disuse of ergot during labor has arisen principally from two causes. The first of these is that, when given before delivery, as it was formerly, it was very much abused. Ignorant and incompetent practitioners were in the habit of giving it to hasten tedious labor that was occasioned solely by the presence of some mechanical obstacle. The second cause of the disuse of ergot during labor is that at the present day obstetricians have learned that in the forceps they have an ally that is much safer and more efficient, because it is completely under their control. There are exceptional cases, however, says the author, especially those of simple deficiency of uterine action, in which ergot supplies this natural deficiency, and he recently has had occasion to employ ergot in a case of this kind with the best results.

The chief feature in the case was that the pains induced by the ergot bore an exact resemblance to the natural pains which

are met with in ordinary unassisted labor. He thinks that there is no reason to doubt that these pains were the direct result of giving ergot, for the first one came on within half an hour after the first dose was given, and they continued uninterruptedly and gradually increased in force until the child was born, about five hours afterward. The first dose had been given at a time when there was complete absence of pain. In this respect, the action of ergot in the present case appeared to differ from what is ordinarily observed. Many authors think that, although it is capable of increasing uterine pains which already exist, it is incapable of exciting them anew, as it undoubtedly did in this case. In this instance the author transgressed an ordinary rule of practice, not to give ergot until the first stage is over; whereas he began to give it when the os uteri would scarcely admit the extremities of two fingers, and this non-observance of a common rule, he says, not only did no harm, but was followed by the best results. It can easily be imagined that, in a primipara, when delay in the first stage of labor arises from the obstacle presented by a rigid os uteri, the use of ergot might cause serious injury; but not so in a multipara with a soft, dilatable os, as in this case. It can not, however, says Dr. Swayne, be overlooked that in this case the action of ergot was much more favorable than it usually is. For instance, Dr. Lauder Brunton states that "ergot causes contraction of the uterus, especially of the pregnant uterus; this contraction is not usually so much rhythmical as tetanic in nature, and occasionally increases in violence; there is no complete relaxation between the spasms, as in the ordinary labor pains." In this case, however, continues the author, the quiescent intervals between the pains were very regular and well marked. The child's life hung upon such a thread that he is confident that it would have died if the pains had assumed the tetanic character described above, so as to interfere with the utero-placental circulation, or even if ergot had exerted that kind of toxic influence on the child which is often attributed to it.

With respect to the mother, Dr. Swayne feels sure that if, instead of giving ergot, he had rapidly delivered by turning or using the forceps, the sudden emptying of a flabby uterus would have caused serious post-partum hæmorrhage, and also increased the danger to the child. He thinks that he was very fortunate in having to deal with a patient upon whom, perhaps from some peculiar idiosyncrasy, ergot of rye acted so kindly and so beneficially.

A New Method of Mixed Anæsthesia.—At a recent meeting of the Académie de médecine, a report of which appears in the *Gazette médicale de Paris* for October 13th, M. Paul Langlois and M. G. Maurange presented a new method of anæsthesia which is intended to avoid the accidents due to the employment of pure chloroform. An effort has been made to weaken the toxic action of chloroform or ether on the nervous centers by mixing air impregnated with chloroform and nitrous oxide with ether. Certain authors, instead of modifying the anæsthetic, had thought it preferable to act on the nervous centers, and in order to do that had combined morphine and chloroform. Dastre and Morat had sought to suppress the governing action of the pneumogastric nerve with atropomorphine. Others had endeavored to strengthen and regulate the cardiac beats during anæsthesia. M. Langlois and M. Maurange, after availing themselves of M. Laborde's researches on sparteine, had found a method which offered greater security. They had verified, in previous experiments, the double action of sparteine, which, as shown by Laborde, was a dynamogenic and a tonic to the heart, and, according to Masius, moderated the excitability of the pneumogastric nerve.

Proceeding on these results, M. Langlois and M. Maurange

had used injections of a cubic centimetre of the following solution before administering chloroform: Morphine hydrochloride, two grains; neutral sulphate of sparteine, from five to eight grains; sterilized water, a sufficient quantity. Under these conditions the authors had operated on one hundred and forty-eight patients, and in no case had there been the least accident or the least cardiac disorder; their operations, too, had been performed on persons suffering with tuberculosis or albuminuria or convalescent from typhoid fever, etc.; the operations had also been occasionally of long duration. Furthermore, by the previous injection of sparteine and morphine a rather small quantity of chloroform sufficed to maintain anæsthesia, which was easily and rapidly obtained. The pulse was always full and regular; the heart beats were always strong, even when the narcosis lasted for two hours or longer, and when toxic apnoea showed itself. When respiration became feeble and toxic apnoea was produced, the anæsthesia might be continued without inconvenience if rhythmic traction on the tongue was resorted to.

M. Langlois and M. Maurange concluded that injections of sparteine and morphine before chloroform was administered, and rhythmic traction of the tongue during anæsthesia, were the best means of preventing cardiac and respiratory bulbar syncope.

Piperazine and Other Eliminants in the Treatment and Prevention of Gout.—The October number of the *Practitioner* publishes an article on this subject by Dr. E. D. Mapother, of London, who states that he has had few opportunities of using piperazine in acute gout. In regulating intermittent pulse, he says, clearing habitually turbid urine, and relieving sick headache, depression, and pricking joint pains, its effects are apparent. He cites the following case: A child, nine years old, whose parents were very gouty, suffered from an attack of acute and two attacks of subacute rheumatism, and afterward had intermittent paraplegia. On the assumption that the diathesis was merely modified by age, piperazine was largely given, and the paralysis twice suddenly disappeared.

The dose should range from five to ten grains, given three times a day. No bad effect has ever appeared, even after twenty-grain doses have occasionally been given. A small dose taken every night for some weeks is a reliable prophylactic. There is no advantage, says the author, in taking it in effervescent waters that contain calcium salts. It bids fair, he thinks, to supplant lithia, potassa, and salicylate of sodium as solvents and eliminants of the urates.

An occasional dose of blue pill does manifest good by increasing biliary secretion and lessening the storage of the urates in the liver and spleen. If the custom of taking saline waters after the blue pill is followed, any of the natural purging waters are suitable. The author has used Villacabras water in cases of gout occasionally, and has found it very satisfactory, especially as regards the non-production of subsequent constipation.

For the alleviation and prevention of chronic gout there is no agent so easy of employment and so efficient as the copious drinking of pure water, especially between meals. The peasants of the western half of Ireland suffer greatly from chronic rheumatic arthritis, due probably to the small amount of sodium chloride and alkaline carbonates in the farinaceous food they mainly rely on and the great quantity of lime in the well-water which they drink. In this way the eburnation of the articular surfaces and the bony growths around the joints may be accounted for. It is possible that, as age advances, the lime may displace the soda which is deposited earlier. The cold, damp climate and neglected ablution check perspiration and direct the water to the kidneys, and thus may be explained the rarity of calculous disease among those people. However, the natives

of India use a similar class of food and water, and yet in some districts calculus is very common. Free perspiration and muscular inactivity may explain this, says the author, but, as the natives of other districts living on a similar diet are free from the disease, some meteorological or geological factors not yet ascertained must be present.

The habit of drinking water at about 130° F. at bedtime has been advised to prevent insomnia. An hour before going to bed is a more suitable time, for the heat of the bed would draw off the water by the skin instead of allowing it to flush the urinary organs, by which the good is done. In places where a public supply of soft water is not to be had, distilled water is very useful; also rain water boiled and filtered. A notable result of the drinking of pure water is the lessened frequency of micturition among the gouty. It is believed, says Dr. Mapother, that the best health-resorts for the gouty are those where the waters contain the least solids, with the exception of those which contain sodium chloride. The immunity of sailors from uric-acid diseases is attributed to the quantity of common salt in their food. The action of sulphur waters is not fully understood, although their usefulness has been recognized for many years.

Of alcoholic liquors, unsweetened gin is by far the most admissible, and champagne the least so. The prostate and anus, which have a common vascular and nervous supply, are often highly irritated by taking even a glass or two of the latter. With regard to beers, the author says that he has never found that Bass's India draught pale ale, taken in small quantities at meals, disagrees. It is laxative, which can not be said of other ales and porters, especially if bottled, owing to their acidifying properties. An occasional fast from alcohol and from varieties of highly nitrogenized food is often serviceable.

Fresh fruits appear to aid in the excretion of the urates, as their salts alkalize and increase the urine, and their vegetable acids stimulate the salivary glands. Their peculiar sugar is readily absorbed, whereas cane sugar is injurious, much of it not being acted on until it reaches the small intestine, where it meets with invertin.

With regard to eating, frequent small meals during the day are clearly advisable for the gouty, as in this way the urine is kept alkaline for a great part of the twenty four hours, giving eight hours' work a day at least for the kidneys under this chemical condition.

The daily sponge bath, preferably at 82° F. (the Buxton water temperature, on which much of its efficacy depends), is distinctly preventive of gout, especially if followed by rough friction. The Turkish bath is also advisable in many cases, and shampooing may remove the uratic stasis in the lymphatics, and may partially break down topi and lead to their absorption.

Well-regulated exercise is all-important, as one fact will make evident, says the author; that is, in a gouty subject of hemiplegia, uratic deposit is abundant in the powerless leg, while often absent in the other. Inactivity during a long sea voyage, combined with the usual full living, often, provokes gouty symptoms; but the seasickness must rid the digestive organs of urates; hence the improved health which frequently results, and the *malaise* which follows if there has been no emesis.

The Late Dr. Oliver Wendell Holmes.—Last week we alluded to certain remarks by two of our English contemporaries called out by Dr. Holmes's death. In the *Lancet* for October 13th we find the following editorial:

"The death of Oliver Wendell Holmes must necessarily appeal with particular force to all who follow, as he followed, the profession of healing. While the purely literary world is

lamenting the loss of the brilliant essayist, the delicate poet, the spontaneous humorist, the ever sympathetic, ever appreciative colleague, we are lamenting in him the medical man of letters. In so doing we are not debarred from admiring sincerely, even fervently, his great and fascinating qualities; but it is in his character of physician that he makes special appeal to us. And this is the more right that it is in the character of physician that he himself makes many of his most intimate claims upon the attention and affection of his readers. The medical men of letters are a comparatively small band. The names of Smollett, Thomas Browne, and John Brown at once occur to us; Keats and Goldsmith both served an apprenticeship to our art; and more than one living physician is a good as well as a popular novelist; but the union of medicine and letters is rare. Oliver Wendell Holmes was not only an example of this rare class, but in many respects he was a unique example; for in him the physician—now as anatomist or physiologist, now as psychologist, now as diagnostician—was ever present and ever speaking. He wrote no book without drawing largely upon his scientific experience; he displayed in all his literary workmanship, in thought as much as in expression, an accurate tolerance—a capability of taking the large view, with a resolve to be correct about small things—that we make bold to say, as he would often proudly say, had been largely developed by his particular training; and many of his wittiest little parables and paraphrases, many of the most characteristic sayings of those three charming rulers of the Breakfast-table, were the direct outcome of his medical learning.

"*Si sic omnes!* For the public nowadays is suffering from a surfeit of medicine in its literature. Heredity and the transmission of physiological or psychological taints; sexual problems; problems in mental pathology form the essence of the work of a large school of writers. Sometimes the work is well done and sometimes extremely ill done. Now and again the great romancer will by a few illuminating words supply a real contribution to the scientific side of psychology; more often we are asked to solace ourselves after the day's work with long-drawn questions pruriently put and left unanswered by a string of pompous deductions. And so we say: Ah, if all were like the Autocrat of the Breakfast-table! Would that all our advanced novelists would recognize, first, that it is necessary to know before instructing, and to see before leading, if the ditch is to be avoided; and, second, that there is wisdom in restraint and an art in remaining silent; that furibund descriptions of animalism, if accurate, are inappropriate in general literature, and that to display to common gaze a dissection of the morbid imaginings of the sick mind may be an act of positive indecency. Oliver Wendell Holmes was a man who knew. Whither he would lead, his readers might always be content to follow without fear of the ditch. His science was sound, his wisdom indubitable, and his powers of observation and introspection were of the acutest. And how did he use them? Not by shirking the responsibilities laid upon him by his possession of exceptional knowledge, as great men have before now done through fear of giving offense; on the contrary, his whole work is pervaded by his particular learning. And not by persistently presenting to the mental eye the dissected body or the sick soul, the charnel-house, the bordel, or the asylum; on the contrary, his multifarious writings are absolutely free from the taint of nastiness. Oliver Wendell Holmes used his beautiful endowments in the highest way for the good of all, neither burying his talents nor prostituting them. He was removed by a lovable, modest, sympathetic nature from all possibility of writing the harmful; he was removed by a true and highly cultivated artistic sense from the common error of spoiling a picture by overloading it with unnecessary details; lastly and chiefly, he was removed by his

assured place as a man of scientific education, undoubted learning, and equally undoubted literary genius from all temptation to medical or linguistic display. From this position, with the conscientiousness of the skilled workman and the unpremeditated charm of the poet, he poured out broad lessons of human sympathy and preached a genial, yet shrewd, gospel of kindness."

In an obituary notice published in the *British Medical Journal* of the same date the following passages occur:

"Of his poems (*Songs in Many Keys, The Iron Gate, Before the Curfew*, etc.), and of his novels (*Elsie Venner, The Guardian Angel*, and *A Mortal Antipathy*) we have not space to say more than that they all display the graceful felicity and distinction of style, agility of thought, and playfulness of fancy which are his most striking characteristics as a writer. It is his medical rather than his 'belletristic'—if we may use a word with which Mr. Andrew Lang has enriched our language—writings which concern us here.

"In 1838 he gained the Boylston Prize by a dissertation on intermittent fever, and he subsequently won two more of these rewards. In 1842 he made a vigorous attack on the Hahnemannian heresy in *Homœopathy and its Kindred Delusions*, which is still well worth reading. In 1843 he wrote an essay entitled *Puerperal Fever a Private Pestilence*, which is his most valuable contribution to medical science. This paper was read before the Boston Society for Medical Improvement on February 13, 1843, and was published by request of the society in the *New England Journal of Medicine and Surgery* for April of the same year. In this essay Wendell Holmes formulated the following conclusions, based on his own experience in obstetrical practice:

"1. A physician holding himself in readiness to attend cases of midwifery should never take any active part in the post-mortem examination of cases of puerperal fever.

"2. If a physician is present at such autopsies, he should use thorough ablution, change every article of dress, and allow twenty-four hours or more to elapse before attending to any case of midwifery. It may be well to extend the same caution to cases of simple peritonitis.

"3. Similar precautions should be taken after the autopsy or surgical treatment of cases of erysipelas, if the physician is obliged to unite such offices with his obstetrical duties, which is in the highest degree inexpedient.

"4. On the occurrence of a single case of puerperal fever in his practice, the physician is bound to consider the next female he attends in labor, unless some weeks at least have elapsed, as in danger of being infected by him, and it is his duty to take every precaution to diminish her risk of disease and death.

"5. If within a short period two cases of puerperal fever happen close to each other, in the practice of the same physician, the disease not existing or prevailing in the neighborhood, he would do wisely to relinquish his obstetrical practice for at least one month, and endeavor to free himself by every available means from any noxious influence he may carry about with him.

"6. The occurrence of three or more closely connected cases, in the practice of one individual, no others existing in the neighborhood, and no other sufficient cause being alleged for the coincidence, is *prima facie* evidence that he is the vehicle of contagion.

"7. It is the duty of the physician to take every precaution that the disease shall not be introduced by nurses or other assistants, by making proper inquiries concerning them, and giving timely warning of every suspected source of danger.

"8. Whatever indulgence may be granted to those who

have heretofore been the ignorant causes of so much misery, the time has come when the existence of a *private pestilence* in the sphere of a single physician should be looked upon not as a misfortune but a crime; and in the knowledge of such occurrences, the duties of the practitioner to his profession should give way to his paramount obligations to society."

"It may, therefore, with justice be claimed for Holmes that he was the pioneer in the field of antiseptic midwifery in which Semmelweis afterward did such splendid work. It may be added that Holmes came in for his full share of the ridicule and abuse with which the medical profession has so often rewarded the preacher of a new truth. More fortunate than Semmelweis, however, Holmes could afford to despise the outcry which followed the publication of his paper. It was reprinted with some additions in 1855 and again in 1883 and 1892. Among his other medico-scientific writings may be mentioned *Currents and Counter-current in Medical Science* (1861), *Border Lines of Knowledge* (1862), *Mechanism in Thought and Morals* (1871), *Physiology of Versification and the Harmonies of Organic Life*,* and several scattered lectures and addresses. He was specially interested in optics and microscopy, and in vol. iv of the *Proceedings* of the American Academy there is a very interesting paper by him on Reflex Vision. He also suggested some practical improvements in the microscope.

"What Holmes was as a professor can not be told better than in the words of President Eliot, of Harvard, at the congratulatory 'Breakfast' already referred to. He said:

"It seems to me that it is my duty to remind all these poets, essayists, and story tellers who are gathered here, that the main work of our friend's life has been of an altogether different nature. I know him as the professor of anatomy and physiology in the Medical School of Harvard University for the last thirty-two years, and I know him to-day as one of the most active and hardworking of our lecturers. Some of you, gentlemen, I observe, are lecturers by profession, at least during the winter months. Dr. Holmes delivers four lectures every week for eight months of the year. I am sure the lecturers by profession will understand that this task requires an extraordinary amount of physical and mental vigor. And I congratulate our friend on the weekly demonstration of that vigor which he gives in our medical school. Most of you perhaps have the notion that Dr. Holmes chiefly enjoys a pretty couplet, a beautiful verse, an elegant sentence. It has fallen to me to observe that he has other great enjoyments. I never heard any other mortal exhibit such enthusiasm over an elegant dissection. And perhaps you think it is with the pen that Dr. Holmes is chiefly skillful. I assure you that he is equally skillful with scalpel and microscope. And I think that none of us can understand the meaning and scope of Dr. Holmes's writing unless we have observed that the daily work of his life has been to study and teach a natural science—the noble science of anatomy. It is his to know with absolute exactness the form of every bone in this wonderful body of ours, the course of every artery and vein and nerve, the form and function of every muscle; and not only to know it, but to describe it with a fascinating precision and enthusiasm. When I read his writings I find the traces of this life-work of his in every page. There are three thousand men scattered through New England at this moment who will remember Dr. Holmes through their lives, and transmit to their children the memory of him as student and teacher of exact science. And let us honor him to-day, not forgetting—they can never be forgotten—his poems and essays, as a noble representative of the profession of the scientific student and teacher."

* *Boston Medical and Surgical Journal* of January 7, 1875.

"To few men can it have been given to lead a life so completely in accordance with his tastes as was the lot of Oliver Wendell Holmes. He never felt the bitterness of the struggle for bread; he was most happy in his family relations; he had troops of friends among the most distinguished of their time; he was beloved by thousands who had never seen his face or heard his voice. To him more perhaps than to any other writer the fairy godmother of literature of Macaulay's exquisite lines might have said:

"And if for some I keep a nobler place,
I keep for none a happier than for thee."

The New York State Association of Railway Surgeons.

—The fourth annual meeting will be held at the Academy of Medicine, New York, on Thursday, November 15, 1894, under the presidency of Dr. Cavana, of Oneida. The programme includes the following papers: Important and Unsettled Questions in Railway Surgery, by Dr. Cavana; Arguments favoring Early Amputations, by Dr. W. L. Estes, of South Bethlehem, Pa.; Arguments favoring Delayed Amputations, by Dr. T. H. Manley, of New York; The Technique of Amputation, by Dr. John A. Wyeth, of New York; Asepsis and Antisepsis in Surgical Work, by Dr. F. A. Stillings, of Concord, N. H.; Special Features in Railway Surgery, by Dr. C. B. Herrick, of Troy; The Immediate Care of Railway Injuries, by Dr. J. A. Van Duyn, of Syracuse; and Important Factors in Unusual Results following Traumatism, by Dr. R. S. Harnden, of Waverly, N. Y.

The Medico-legal Society.—There will be a joint session of the Medico-legal Society and its Section of Medico-legal Surgery at the Academy of Medicine, New York, on Thursday, November 15th, at 8 o'clock P. M. The following papers will be presented: Hygienic Training of Men in Charge of Railway Trains, by Dr. Granville P. Conn, of New Hampshire; Expert Examination of the Plaintiff in Damage Cases, when Ordered by the Court, by Dr. George Chaffee, of Brooklyn; The True Line of Duty of the Railway Surgeon, by Clark Bell, Esq., of New York; Medical Witnesses, by Dr. R. S. Harnden, of Waverly, N. Y.

The Mississippi Valley Medical Association will hold its twentieth annual meeting at the Hotel Eastman, Hot Springs, Ark., on November 20, 21, 22, and 23, 1894.

The *American Practitioner and News* adds the following to its announcement of the meeting:

"In order to properly accommodate conventions political, conventions theological, conventions medical, or conventions anything else, the city assuming the responsibility should possess not only the advantage of accessibility, not only facilities for lodging, feeding, and entertaining large bodies of men in an agreeable and satisfactory manner, but it should, if possible, present conditions and surroundings germane to the object of the gathering. What more fitting than for the doctors to assemble at Hot Springs, the great national hospital and sanitarium? Where else can they find such an aggregation of afflicted so keenly interested in the results of their consultations and deliberations? Hot Springs is an ideal place of meeting, and it will be more than passing strange if the twentieth annual assembly of the Mississippi Valley Medical Association does not prove the most interesting and most valuable in the history of the organization. Its location and intimate connection with the great railway systems of the Central, Western, and Southern States make Hot Springs easily and quickly accessible to all members of the association; its scores of excellent hotels promise ample accommodation, without crowding, for all who may attend, and at prices suitable to all

pockets; its hospitable citizens extend a welcoming hand, and are exerting themselves in every direction to make the occasion a pleasant and profitable one. The time of the meeting, November 20th to 23d, could not have been better chosen. While the weather in the North is becoming wintry, the climate here is mild, the days are bright and pleasant, and all the surroundings cheerful and attractive."

The Local Treatment of Erysipelas with Antiseptics.—

The *Union médicale* for September 29th publishes an article on this subject in which the author remarks that since recent researches have shown that erysipelas depends upon pyogenic streptococci a large number of antiseptics have been tried locally. One of the most universally used is corrosive sublimate, of which Talamon used a one-per-cent. solution in ether in a small spray apparatus in the following manner: Simply sprinkle the center of the patch, but spray plentifully and for a longer time over the periphery, and particularly over the marginal prominence; at the same time a space of one or two centimetres on the healthy skin should be sprayed in order to arrest the spread of the disease. This should be continued for a longer time on the back of the neck, on the back, on the body, and on the limbs than on the face. Before beginning this treatment the patient should be warned that the spraying will produce a painful, smarting sensation, although it is no more painful than the tension of the skin caused by the erysipelatos infiltration; also, that the face becomes bloated and that blisters and crusts will form, consequences, however, that may be brought out and often are occasioned by the disease itself. The crust should not be touched with the fingers; it should become detached and fall under the application of compresses saturated with boric-acid solution, which are to be kept on the diseased parts during the intervals between the spraying. According to Talamon, if this treatment is employed from the onset of the disease it may cut it short in twenty-four hours, and even in grave cases the virulence of the germ becomes attenuated. Spraying with corrosive sublimate may cause the appearance of a pigmentary mask; it may also develop an intense and rebellious dermatitis.

Robin employed Van Swieten's liquor combined with tartaric acid, and sprayed over a space of thirty centimetres for half an hour four times a day. This treatment does not produce any lesions of the skin, and, instead of giving rise to pain, it acts as a sedative.

Labanewski applied compresses saturated in a hot solution of Van Swieten's liquor, and renewed them as often as possible.

Petrini, after using calomel, applied locally a solution of two grains of corrosive sublimate in two ounces of flexible collodion. The affected parts were painted with this twice a day for three or four days, and a thick layer of the solution was applied to the edge of the patch and somewhat beyond it. Pills containing quinine sulphate and iodoform were given. This treatment, says the writer, is sufficiently aseptic to prevent all danger of contagion. Collodion has been employed by many authors as an agent of compression, and if it is used for this purpose very thick layers must be applied to the edge of the patch. Diachylon also has been used on the edge of the erysipelatos region.

Juhel-Renoy obtained good results with a mixture of traumaticin and ichthyol, which should be applied with a brush around the patch for a distance of about one or two centimetres; this preparation causes a slight smarting sensation.

Gluck employed ichthyol in the following manner: First, carefully wash the affected region, then make a number of incisions in it and in a small circle of the surrounding skin; these incisions may be partly superficial and partly deep—that is, going as far as the subcutaneous tissue. The scarified surface

is then washed with an antiseptic solution, energetically manipulated, dried, and rubbed with a sixty-per-cent. ointment of ichthyol. Finally, a layer of this ointment is applied and covered with cotton. These frictions with ichthyol should be continued for several days after the fever has disappeared. Ichthyol exercises a more powerfully destructive action on streptococci than carbolic acid.

Oehner combined pure alcohol with ichthyol, and painted the diseased parts three or four times a day; during the night the ichthyol was used in the form of an ointment. The local process was immediately arrested, and the temperature became normal in twenty-four hours.

Vaskressepsky used compresses of diachylon above and below the diseased parts, together with the following ointment: Ichthyol, from 60 to 120 grains; lard, 450 grains.

Hueter advocated subcutaneous injections of carbolic acid, which should be made in the healthy skin at a distance of from one to two centimetres from the erysipelatous swelling, and the diseased parts surrounded with injections from three to six centimetres apart. Over this a sheet of cotton is to be placed. From thirty to forty-five centimetres may be injected at a time. The fever falls and the redness disappears in from twelve to twenty-four hours. The injections are painful and may be followed by small abscesses, and symptoms of intoxication may also occur.

Hayem employed a solution of equal parts of carbolic acid and alcohol without causing any pain, but if the carbolic acid is in excess it produces persistent cicatrices.

Trapeznik prescribed a mixture of sixty grains of carbolic acid and three ounces of oil of turpentine.

Rathe employed a mixture containing carbolic acid, tincture of iodine, alcohol, and glycerin.

Wilde used injections of sodium sulphocarbonate, and Peter- sen used salicylic acid in the same way.

Le Gendre employed subcutaneous injections of boric acid in a one-per-cent. or in a one-in-fifty solution. Two circles of injections are made, the first from three to four centimetres from the erysipelatous marginal swelling, and the second three centimetres beyond the first.

Riedel made two series of incisions on the erysipelatous swelling half a centimetre apart and crossing at right angles. The point of intersection should correspond to the limit of the patch. Afterward it is covered with compresses saturated with a solution of corrosive sublimate, which are renewed three times a day. Recovery is very rapid, but unfortunately it is often necessary to use chloroform, and, furthermore, the treatment sometimes leaves visible cicatrices.

Other writers, says the author, may be added to this list, but it is better to make a choice, and he thinks that the preference should be given to the employment of the spray with corrosive sublimate, cautiously practiced according to Robin's method. At the same time emollient fomentations and unctions with vaseline to which boric acid has been added may be employed, as they rapidly quiet the pains.

The Employment of Sodium Bicarbonate in the Treatment of Diseases of the Stomach.—The *Revue internationale de médecine et de chirurgie pratiques* for October 10th publishes an article on this subject by M. Dujardin-Beaumetz, who remarks that the first indication of the employment of alkalies is found in Chomel's work on dyspepsia. He described all forms of dyspepsia, muscular or chemical, and he was careful to insist on the treatment of alkaline dyspepsia and of acid dyspepsia. For the latter, he laid stress on the usefulness of Vichy water and salts.

With regard to the use of sodium bicarbonate and its influ-

ence on the digestion, says the author, Jaworski, Gegel, and Abend maintained that it increased the acidity of the gastric juice. Du Mesnil also arrived at the same conclusion. Hayem employed Winter's procedure, which tended to show that sodium bicarbonate might increase or diminish the acidity of the gastric juice, according to the dose administered and the time at which it was given. Small doses before meals cause an increase, while large doses taken after meals considerably weaken the acidity. In 1893, M. Linossier and M. Lemoine presented a very important paper to the *Académie* on the action of alkalies on the digestion. Their conclusions, based on a large number of analyses, were important, and M. Dujardin-Beaumetz gives the substance as follows: 1. Sodium bicarbonate excites gastric secretion. 2. When the dose is small, the increase of acidity is slight and variable. 3. When it is a medium dose, the increase of hydrochloric acid is considerable. 4. When the dose is large, the period of excitation is prematurely arrested. 5. The excess of hydrochloric acid varies according to the doses, reaching its maximum with small doses in two hours, with medium doses in three hours, and with large doses in four hours. 6. The bicarbonate should always be given an hour before eating. 7. At the beginning of a meal the administration of the bicarbonate appears to suspend the secretion of pepsin. After the meal the exciting action becomes attenuated. 8. Sodium carbonate also gives results somewhat analogous to those of sodium bicarbonate. These results, says the author, are of much importance, although they have not been entirely admitted by all experimenters.

According to Hayem, sodium bicarbonate stimulates the digestion, and the so-called excitation in the secretion of the gastric juice results from this fact, "that the processes of the stomach having progressed more rapidly, the maximum of the chemical acts is attained sooner. In reality, the employment of sodium bicarbonate *always diminishes* the amount of chlorides in the urine and tends to produce a depression of the processes of the stomach, not always at the moment of recovery, but subsequently."

With regard to clinical results, when three ounces of Vichy water are taken in two doses at an interval of half an hour, also when the dose is doubled, the acidity of the gastric juice is increased. Here the dose of sodium bicarbonate does not exceed eight grains, for Vichy water contains on an average sixty grains of the bicarbonate in a pint. The author thinks that the remarkable action of Vichy water in intestinal putridity and the secondary infections which result from it, particularly infectious icterus, results from the same fact, that is, from the increased acidity of the gastric contents. One of the most powerful antiseptics is hydrochloric acid, and one can understand that the increase of this acid constitutes an essential element of intestinal antiseptis.

There is another factor, the catarrhal element, which may be mentioned. Excess of hydrochloric acid is, in a large majority of cases, a matter of irritation or of congestion of the gastric mucous membrane, and in this case the alkaline waters act as a dressing to the inflamed mucous membrane, having qualities comparable to those of blood serum; they have an effect, in contact with the mucous membrane, in causing osmosis, quieting, and relieving congestion.

With regard to Reichmann's disease, he himself maintained that a cure was impossible, but Dr. Dujardin-Beaumetz* thinks that this assertion is wrong. He recognizes the difficulties attending the cure in the last stages, but, if it is taken in time, he says, it is curable, and the curative agents are the alkalies and the alkaline waters. In this disease the administration of the dose must be modified. It should be given during the meal or four hours afterward. Sometimes the dose must be increased,

and in this case Vals water must be employed, as it contains a hundred and thirty-five grains of sodium bicarbonate to the pint, or the bicarbonate itself may be given in doses of from fifteen to sixty grains.

The author often associates the bicarbonate with intestinal antiseptics as follows: Salol, benzonaphthol, and sodium, each, a hundred and fifty grains. This is to be made up into thirty capsules. In cases of hyperchlorhydria he increases the sodium bicarbonate to three hundred grains, and decreases the salol and benzonaphthol, each, to seventy-five grains. One capsule is to be taken during the meal, and another four hours after.

M. Dujardin-Beaumetz concludes that: 1. In chemical dyspepsia, in cases of hypochlorhydria, the dose must be given an hour, or half an hour before eating, and in hyperchlorhydria during the meal, or from three to four hours afterward. 2. In muscular dyspepsia, when there is a tendency to stasis or to dilatation of the stomach, the dose should be given during the meal or an hour afterward. 3. That the best alkaline waters to be employed in the treatment of diseases of the stomach are those containing sodium bicarbonate.

Confidential Communications and Suits for Malpractice.

—The *Cincinnati Lancet-Clinic* for October 13th contains an article commenting on a case in which a physician charged with malpractice in failing to treat a dislocated hip properly lost his case before a trial court in Indiana, and afterward carried it to an appellate court. It appears that he had treated the patient for about two months, when it became apparent that his treatment was not proving successful, and he recommended the patient to go to Indianapolis, where there were surgeons better prepared to treat such cases. The physician went to that city with his patient, and several physicians saw the patient in consultation with him. On the trial the physician attempted to prove, by his own testimony and that of one of the consulting surgeons, what had occurred at this examination and to show the condition of the patient's injury at that time. This was objected to on the ground that such testimony would disclose confidential communications, which in the case of such communications made by a patient to his physician is strictly forbidden in Indiana by both statute and precedent. The objection was sustained and a verdict of \$1,500 was found against the physician. On the appeal, the court reversed this judgment and ordered a new trial. While it was held that, as a rule, communications made by a patient to his physician were required by law to be treated as confidential, and while physicians were equally forbidden to make known the results of their observations and examinations of a patient's person, unless with the patient's consent or unless he waived the privilege, it was added that, when the patient sued the physician for alleged malpractice, the privilege was waived as to all matters connected with the physician's participation in the treatment of the case. It would be most manifestly unfair, said the Court, to establish any other rule. Furthermore, it could not be successfully asserted that the physician should not go into this particular transaction at Indianapolis because it was disconnected with the remainder of his treatment and because the patient had not gone into it himself. According to the physician's theory of the case, as supported by some evidence at least, the examination and the consultation that took place in Indianapolis had been but steps in the effort to accomplish what the physician had all along been aiming at—the cure of his patient. It was not permissible for the patient to select certain portions of the physician's treatment or particular visits and examinations, and, by detailing them, limit the physician's testimony to those particular occurrences. Therefore the physician sued for malpractice in this case was entitled to prove, both by

his own testimony and by that of the consulting surgeon, anything that had occurred at the examination in Indianapolis, so far as it was pertinent to the issues involved in the cause.

Mental Disturbance as a Cause of Zoster.—In the *Lancet* for October 13th Mr. Antony Roche remarks that there are few diseases more interesting than zoster from a physiological point of view, and states that he has been struck with the frequency of its occurrence after some cause that produces mental depression or anger. This, he says, has been noticed by others, and he cites Bateman and Schwartz as having recorded such instances. He himself has noted the following cases: 1. A woman suddenly received the news that her husband had been ordered to India, and the next morning the eruption appeared on her left side. 2. An old man learned that a firm in which he was interested had failed, and that evening he noticed the spots on his left side. 3. A woman was much distressed at the sudden illness of her son, and on the following morning the eruption was found to have appeared. 4. A child, six years old, of remarkably equable temperament, was sent to bed for disobedience. She cried very much, and the next morning the eruption was noticed on her left side. 5. The author was recently consulted by a woman whose only son was shortly to be married. She complained of pains in her left side and of an eruption, which turned out to be that of zoster. She herself ascribed the rash to grief at the idea of parting with her son.

A Post-graduate Course for Montreal.—The *Montreal Medical Journal* urges the need of post-graduate instruction in Montreal. When, says our contemporary, a physician visits that city during the college session he finds that he is a supernumerary, for everything in the way of teaching is for the benefit of the students. He is shown the interesting cases, but has no opportunities for study unless he enters on the same footing as an undergraduate, and that, in the great majority of cases, he is unwilling to do, as he wishes to take up only certain branches in which he feels that he needs some knowledge. The *Journal* recognizes that there are difficulties in the way of arranging such a course, but feels that it must come before long. It suggests a course lasting for four weeks, arranged on a plan similar to that of the summer session. This, it thinks, would do for a beginning, to be improved upon in the course of time. It is acknowledged that this would involve more work for the teachers, who already are heavily burdened, but in view of the great gain that would accrue to Montreal and her universities from such a course, when found practicable, our contemporary feels sure that the additional labor would not be begrudged, and that, being given cheerfully and in concert, it would result in success.

A Question of Ownership.—The *Province médicale* for October 13th, says: "Has a tooth that has just been extracted an owner, and, if it has, to whom does it belong? This singular question has been actually submitted to a court at Gera. A person who had suffered for a long time with violent toothache consulted a dentist who extracted the tooth. As it appeared to him to be an interesting specimen, he wished to preserve it and put it into his collection of curious things. The patient, however, claimed the tooth as his property, and, as an amicable agreement could not be established between them, the patient lodged a complaint of fraudulent appropriation against the dentist. The accused demanded the tooth and supported his claim by quoting ancient customs in similar cases. He maintained that when a tooth was extracted it became an object without an owner and that thus it fell into the possession of the dentist; consequently there could be no fraudulent appropriation or any punishable act."

Original Communications.

THE DIFFERENTIAL DIAGNOSIS OF
TRAUMATIC INTRACRANIAL LESIONS.*

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In a paper read before this association two years ago, I indicated the comparative facility with which it is possible to diagnosticate cerebral traumatisms from morbid conditions of internal origin, and also recognized the difficulty of discriminating various encephalic injuries from each other.† Since that time additional observations and analyses of their results have served to broaden the diagnostic horizon. I submitted then an abstract of one hundred and twenty-four cases. I can now add to these one hundred and seventy six others which I have since noted, a total of three hundred, of which one hundred and thirty terminated in death and were made the subject of necropsy.

These additional cases may be summarized as were those previously recorded:

I. <i>Fractures involving the base:</i>	
Recovered.....	36
Died.....	59
Number of necropsies.....	52
II. <i>Fractures confined to the vertex:</i>	
Recovered.....	31
Died.....	12
Number of necropsies.....	7
III. <i>Intracranial injuries without fracture:</i>	
Recovered.....	21
Died.....	17
Number of necropsies.....	13
The consolidation of the two series affords an aggregate of:	
I. <i>Fractures involving the base:</i>	
Recovered.....	57
Died.....	108
Number of necropsies.....	87
II. <i>Fractures confined to the vertex:</i>	
Recovered.....	52
Died.....	22
Number of necropsies.....	17
III. <i>Intracranial injuries without fracture:</i>	
Recovered.....	28
Died.....	33
Number of necropsies.....	26
Total number of recoveries.....	137
“ “ “ deaths.....	163
“ “ “ necropsies.....	130

In accordance with a more restricted purpose I shall confine myself primarily to the abstraction of essential

symptoms in the fatal cases, and to their attendant lesions as verified by necropsic inspection. In order to make this synopsis complete in itself, I shall reproduce in connection with these recent histories an epitome of the analogous cases included in the former series.

The temperatures quoted are rectal; and hæmorrhage is denominated cortical when derived from laceration of the surface of the brain, pial when occasioned by rupture of the pial vessels in meningeal contusion, and epidural when situated between the dura and the skull.

FRACTURES INVOLVING THE BASE.

CASE I. *Symptoms.*—Wild delirium; high temperature; coma; hæmorrhage from left ear; death in forty-eight hours.

Lesions.—Laceration of both parietal lobes upon their lateral and inferior surfaces; cortical hæmorrhage.

CASE II. *Symptoms.*—Active delirium only noted; walking case. Suicide by drowning after twenty-four hours.

CASE III. *Symptoms.*—Coma, stertor, general muscular rigidity, and dilatation of left pupil; hæmorrhage from right ear, and later from right nostril; left hemiplegia after twelve hours, with disappearance of earlier symptoms; urine not controlled; consciousness not restored. Death in six days.

Lesions.—Laceration of inferior and external surfaces of left frontal and of right temporo-sphenoidal lobes; corresponding cortical hæmorrhages thinning toward base and vertex; general hyperæmia.

CASE IV. *Symptoms.*—Semicoma, mild delirium, imperfect articulation, with slow and irregular respiration, which continued for three days; paralysis of right upper extremity and of right upper and lower face, differing in degree at different times; mental condition varying from normal to one of noisy delirium; patient usually restless and during last two days unconscious. Temperature on admission, 101°; during first week, 100°; in second week, 99°+; and rose steadily from 103° to 109° through last two days. Death in forty-five days.

Lesions.—Subcortical laceration beneath the site of depressed fracture, external to right parietal eminence; subarachnoid serous effusion; general hyperæmia.

CASE V. *Symptoms.*—Stupor; gradual unconsciousness; delirium requiring mechanical restraint. Temperature on admission, 102°; ten hours later, 105°; declined to 101·8°, and then rose steadily to 106·6°. Death in twenty-nine hours.

Lesions.—Laceration of inferior surface of left frontal and of both temporo-sphenoidal lobes, and of inner border of right frontal lobe; pial hæmorrhage over upper surface of both hemispheres; general hyperæmia.

CASE VI. *Symptoms.*—Stupor; incoherence; dilatation of left pupil; slight deviation of eyes to the right; second day—delirium, muscular tremor, irregular pupils, frequent and intermittent pulse. Temperature on admission, 103°; five hours later, 102°; and rose to 106·2°. Death in twenty-four hours.

Lesions.—Laceration of inferior surface of left frontal and temporo-sphenoidal lobes.

CASE VII. *Symptoms.*—Stupor; irregular pupils; general muscular rigidity; ataxic gait; diminished sensibility, and loss of urinary control. On the fourth day, temperature normal, mind clear, and muscular rigidity lessened; copious serous discharge from right ear and right facial paralysis; on the fifth day, increased muscular rigidity and recurrence of stupor; on the sixth day, unconsciousness and frequent general convulsions. Temperature on admission, twenty four hours after injury, 99°+; on the fourth day, normal; on the fifth day, 100°+; on the seventh day, 105°. Death on the seventh day.

* Read before the New York State Medical Association, October 9, 1894.
† A Clinico-pathological Study of Injuries of the Head. *New York Med. Jour.*, January 14, 21, 28, 1892.

Lesions.—Contusion of surface of right occipital lobe posteriorly, with minute hæmorrhages and softening; laceration of inferior surface of both frontal lobes, and of right cerebellum; epidural hæmorrhage over both occipital lobes beneath the site of an extensive depressed fracture; cortical hæmorrhage over inferior surface of cerebellum and beneath the situation of the epidural hæmorrhage, where it was firmly coagulated and surrounded by plastic inflammatory exudation; thrombi in superior longitudinal sinus and torcular Herophili, and in right lateral and inferior petrosal sinuses and jugular vein; subarachnoid serous effusion over parietal and occipital lobes.

CASE VIII. Symptoms.—Coma; stertor; muscular rigidity of both sides, most marked on the right; strong contraction of both pupils, but more marked in the left; no change in general condition till death, fifty-four hours later. Temperature on admission, 100.4° , rising progressively to 103.8° ; declined post mortem.

Lesions.—Laceration of anterior border of left temporo-sphenoidal lobe and of the anterior and internal borders of both frontal lobes; cortical hæmorrhage covering the whole base of the brain; subcortical laceration with clot occupying the whole interior of the left frontal and temporo-sphenoidal lobes, and filling with blood both lateral ventricles and both occipital lobes; slight epidural hæmorrhage at point where fracture began in right inferior and posterior parietal region; slight subarachnoid serous effusion; thrombus extending from torcular Herophili through right occipital and inferior petrosal sinuses into the jugular vein.

CASE IX. Symptoms.—Partial consciousness for twenty-four hours; became complete; hæmorrhage from both nostrils and from right ear; delirium on the fifth day with post-cervical muscular rigidity, restlessness, and retraction of the abdomen; Cheyne-Stokes respiration and death. Temperature for three days, 99.2° ; on the fourth day, 103.2° ; on the fifth day, 104.8° .

Lesions.—Laceration of antero-inferior border of left frontal lobe and of inferior surface of right cerebellum; cortical hæmorrhage covering superior and external surface of left cerebrum; general hyperæmia of the left hemisphere with punctate extravasations.

CASE X. Symptoms.—Partial unconsciousness and left hemiplegia, followed by irritability; hæmorrhage from left nostril. Death in twenty-four hours.

Lesions.—Epidural hæmorrhage over left temporal region beneath a separation of the coronal suture; laceration of the right frontal, right parietal about the fissure of Rolando, and of left temporo-sphenoidal lobe.

CASE XI. Symptoms.—Coma; stertor; pulse 70, respiration 7; dilatation of left pupil and contraction of right; paraplegia; hæmorrhage from left ear and nose and under left conjunctiva. Death in five minutes after admission.

Lesions.—Large pial hæmorrhage, mainly at the base; blood still fluid; slight lacerations of inferior surface of left frontal and temporo-sphenoidal lobes; slight cortical hæmorrhage from frontal laceration.

CASE XII. Symptoms.—Right hemiplegia; lack of control of urine and fæces; slight hæmorrhage from nose and left ear; temperature on admission, 99.8° . Death in two days.

Lesions.—Laceration of left parietal lobe beneath parietal eminence.

CASE XIII. Symptoms.—Coma; stertor; pupils, pulse, and respiration normal. Death in five days.

Lesions.—Pial hæmorrhage over both cerebra; laceration of inferior surface of left temporo-sphenoidal lobe.

CASE XIV. Symptoms.—Patient momentarily unconscious, then walked to the hospital in a dazed condition, and afterward

walked home. Severe cephalalgia for three hours, followed by gradual supervention of coma, which became complete in four hours. Death in eight hours.

Lesions.—Large pial hæmorrhage over external aspect of left frontal and parietal lobes; slight epidural hæmorrhage beneath fine linear fracture upon right side; slight contusions of brain substance.

CASE XV. Symptoms.—Coma; dilatation of right and contraction of left pupil; right hemiplegia; pulse became slower and respiration more labored. Death in nine hours and a half.

Lesions.—Large epidural hæmorrhage from rupture of left middle meningeal artery; slight laceration of left parietal, and of lateral border of right temporo-sphenoidal lobe.

CASE XVI. Symptoms.—Unconsciousness followed by stupor; slight but increasing dilatation of left pupil; slight hæmorrhage from left ear; rigidity of left side; labored respiration; later, complete left hemiplegia; temperature, 101.2° . Death in twenty-one hours.

Lesions.—Laceration of inferior and lateral surfaces of right temporo-sphenoidal lobe and slighter lacerations of inferior surface of frontal lobes along the median fissure; extensive cortical hæmorrhage over right cerebrum; general hyperæmia.

CASE XVII. Symptoms.—Unconsciousness; right hemiplegia; dilatation of right and contraction of left pupil; full and slow respiration; normal pulse; supervention of stertor; death in eleven hours.

Lesions.—Extensive epidural hæmorrhage from rupture of left middle meningeal artery; general hyperæmia, with minute coagula and punctate extravasations.

CASE XVIII. Symptoms.—Unconsciousness for thirty minutes and subsequent irritability; hæmorrhage from right ear; second day, somnolence, continued irritability, and lack of urinary control, and temperature 102° ; third day, delirium, temperature rising to 105.4° ; fourth day, moderate dilatation of the pupils, restlessness, hyperæsthesia, increase of surface temperature, followed by deep coma; temperature, $104^{\circ}+$ in the morning and $105^{\circ}+$ in the evening till death, at the end of the seventh day, when it rose to 106.5° .

Lesions.—Deep laceration of lateral border of left temporo-sphenoidal lobe; cortical hæmorrhage over left occipito parietal region; cavity in right parietal lobe beneath point of fracture and opening upon the surface; subarachnoid exudation of thick pus over right posterior parietal and occipital lobes and in right inferior occipital fossa; general hyperæmia and punctate extravasations.

CASE XIX. Symptoms.—Permanent unconsciousness; irritability when disturbed; dilatation of both pupils, especially marked in the right; profuse hæmorrhage from left ear, which continued for twenty-four hours, and was then followed by serous discharge; general convulsive movements, most pronounced in the right leg; temperature, 100° ; pulse, 80; single general convulsion, most violent on the left side, on the second day, and repeated on the third day; temperature rose steadily to 107.2° . Death in three days six hours.

Lesions.—Large epidural clot in left middle fossa; large and deep laceration of the lateral surface of left temporo-sphenoidal and of lateral and inferior surfaces of right temporo-sphenoidal lobes; small and deep laceration at right parieto-occipital junction; large cortical clot in left middle fossa; thin cortical coagulum over right cerebrum.

CASE XX. Symptoms.—Unconsciousness and muttering incoherence when disturbed; subconjunctival hæmorrhage at outer part of left eye; slight temporary rigidity of right arm; restlessness and irritability; little change till death—in seven days ten hours. Temperature on admission, 101° ; in two days

rose to 104.8° , declined from fourth to sixth days to 101° + to 102° +, and then rose progressively to 107° +.

Lesions.—Subcortical laceration of left frontal lobe, completely excavating and filling its interior with clot and disintegrated brain tissue and inclosed by a thin layer of cortex, except at the base, where it was covered only by the meninges; laceration of anterior two thirds of external border of right cerebellum; extravasation of blood of the size of a robin shot in the center of the right corpus striatum; slight cortical hæmorrhage over posterior part of the right cerebrum.

CASE XXI. *Symptoms.*—Unconsciousness and delirium; hæmorrhage from mouth and nose; mental condition in twelve hours became normal; slow pulse; labored respiration; rigidity of arms, especially of the right; normal pupils, followed by restlessness, muttering delirium, lack of urinary control, and unconsciousness; temperature, 104.8° to 106° . Death in twenty-four hours.

Lesions.—Laceration of superior surface of both frontal and both parietal lobes.

CASE XXII. *Symptoms.*—Coma; stertor; full pulse; pulmonary œdema beginning before admission; hæmorrhage from right ear; death in two hours.

Lesions.—Epidural hæmorrhage over both hemispheres and another of larger amount in the inferior occipital fossæ compressing the pons and medulla; slight lacerations of inferior surface of both frontal and right temporo-sphenoidal lobes with some cortical hæmorrhage.

CASE XXIII. *Symptoms.*—Unconsciousness; restlessness; coma nearly complete on fourth day; pupils, pulse, and respiration normal; temperature on fourth day, 102.2° ; on fifth day, 103° to 106° ; on sixth day, 107° . Death in five days and a half.

Lesions.—Laceration of external surface of left frontal and left temporo-sphenoidal lobes, with consequent cortical hæmorrhage.

CASE XXIV. *Symptoms.*—Unconsciousness; persistent vomiting; hæmorrhage from left ear; moderate dilatation of pupils, especially of the left; temperature, 98.7° ; second day, restoration of consciousness, delirium; third day, wide dilatation of both pupils, which were only slightly responsive to light, the left continuing to be more markedly affected than the right, and this condition permanent; sixth day, mind clear but apathetic, followed by stupor, with paresis and anæsthesia of all the extremities, more marked on the right side; later, left foot and right hand less paretic, mind clear, but senses blunted, some right facial paralysis, cephalalgia, rapid and feeble pulse; ninth day, delirium and recurring unconsciousness; eleventh day, patient neither spoke nor moved, nor was conscious of pain or external irritation; on the fifteenth day, death. Temperature below 100° till fourth day, when it rose to 103° , and then varied from 100° to 102° till the twelfth day, when it rose to 104° , and was afterward from 103° to 104.5° .

Lesions.—General hyperæmia with minute coagula and excessive œdema; slight lacerations of inferior surface of right temporo-sphenoidal lobe and one somewhat larger upon its external surface; very moderate cortical hæmorrhage extending over right occipital lobe.

CASE XXV. *Symptoms.*—Stupor; hæmorrhage from right ear; lack of control of urine and fæces; condition alcoholic; second day, active delirium, muscular tremor, delusions, and intervals of unconsciousness; sixth day, coma, stertor, muttering delirium, general muscular rigidity, slight contraction of right pupil, and slight right facial paralysis; eighth day, two slight convulsions involving arms, face, and eyes, followed by paralysis of right arm and face, and elevation of surface temperature of left side; right side normal, left side 102° . Death on the

eighth day. Temperature till fourth day, 100° to 102° ; afterward 103° to 104° till eighth day, when it rose to 105.6° and declined to 104.8° .

Lesions.—Thin layer of pial hæmorrhage, covering both parietal and both occipital lobes, and meningeal hyperæmia; large subarachnoid serous effusion; general œdema of brain substance and minute vessels filled with coagula; fluid blood in anterior cornu of left lateral ventricle; small lacerations of superior and external surface of right frontal and of left occipital lobes and on either side of median fissure of cerebellum.

CASE XXVI. *Symptoms.*—Vertigo and feeling of illness; hæmorrhage from right ear and nostril; temperature, 100° ; soon followed by hæmatemesis, coma, and stertor. Death in four hours.

Lesions.—Epidural hæmorrhage, compressing right frontal lobe laterally; slight pial hæmorrhage on either side of the anterior columns of the medulla; extravasations into the pons in both transverse and longitudinal fibers, the largest a half by a quarter inch in diameter; general hyperæmia with punctate extravasations and coagula in the minute vessels.

CASE XXVII. *Symptoms.*—Coma; stertor; frequent weak and irregular pulse; slight hæmorrhage from right nostril; protrusion of both eyes and dilatation of both pupils, especially of the left; rigidity of right side. Death in eight to ten hours.

Lesions.—Epidural hæmorrhage in right occipital fossa; small laceration of inferior surface of left frontal lobe anteriorly; cortical hæmorrhage over both frontal lobes.

CASE XXVIII. *Symptoms.*—Paresis of left lower extremity; temperature, 98.8° ; fourth day, temperature suddenly rose to 99° + to 102° ; fifth day, delirium, temperature 105.2° to 106° ; death.

Lesions.—Laceration of inferior surface of left temporo-sphenoidal lobe; cortical hæmorrhage, filling left middle fossa.

CASE XXIX. *Symptoms.*—Coma; stertor; dilatation of right pupil, left invisible from ecchymosis; anæsthesia followed by paralysis of right upper extremity; pulmonary œdema; second day, urinary control lost, mind clear, pupils normal, motor and sensory function restored; fifth day, gradual increase of temperature, subconjunctival hæmorrhage noted; sixth and seventh days, mental condition apathetic, subconjunctival hæmorrhage increased; eighth day, sudden unconsciousness, and on the ninth day, death. Temperature on admission, 101.6° ; fifth day, 103° ; sixth day gradually declined to 100° ; eighth day, 104.8° , and rapid decline to 102.8° ; ninth day, 106° .

Lesions.—Subcortical laceration, disintegrating and filling with clot the interior of both frontal lobes; on left side the median surface ruptured through the arm center and gyrus fornicatus, and the lateral ventricle invaded; deep laceration of external border of left cerebellum; internal brain structure softened and reddened in patches of limited contusion.

CASE XXX. *Symptoms.*—Unconsciousness which continued till death; slight hæmorrhage from both nostrils; left pupil dilated; right contracted; loss of control of urine and fæces; face flushed; on the last day of life general sensation markedly diminished. Temperature on admission, 101° ; till next day, 101° +, then rose progressively to 106.8° . Death in three days and a half.

Lesions.—Deep and wide laceration across inferior surface of left cerebellum; laceration excavating inferior surface of right frontal, extending into temporo-sphenoidal, lobe; laceration of middle portion of gyrus fornicatus, half an inch in diameter; anterior fossæ filled with firm clot, three fluidounces by measurement; cortical hæmorrhage in right posterior fossa around foramen magnum, and also over right frontal lobe; general contusion of both hemispheres, most marked posteriorly.

CASE XXXI. *Symptoms.*—Brief unconsciousness, which re-

curred in the ambulance; in the interval no evidence of serious injury; on admission, pupils contracted, sudden cyanosis, and death in twenty-five minutes.

Lesions.—Epidural hæmorrhage over left occipital lobe; pial hæmorrhage in inferior occipital fosse, compressing the medulla; cortical hæmorrhage over both frontal and both temporo-sphenoidal lobes from laceration of their inferior surfaces.

CASE XXXII. *Symptoms.*—*Primary:* Consciousness retained; hæmorrhage from right ear; no general symptoms; temperature, 100.4° , and afterward normal. *Secondary:* On the twentieth day, some lethargy and frontal headache; twenty-third day, severe frontal headache, delirium, somnolence, and left hemiplegia; twenty-fourth day, complete left hemiplegia and hemianæsthesia, insensibility of both pupils, continued somnolence, normal mental condition when roused, temperature 98.5° , pulse 56, cicatrix of wound firm and uninflamed; twenty-fifth day, patient roused with difficulty, action of bladder and rectum unconscious and involuntary, temperature 100.2° ; operation and evacuation of pus, one to two drachms, from subcortical abscess, beneath the angular gyrus. Temperature rose to 108° , and death occurred sixteen hours later.

In the interval between the primary and secondary symptoms there was posterior cervical glandular enlargement, with some constitutional reaction.

Lesions.—Subcortical abscess cavity, which had been evacuated during life. No superficial laceration or hæmorrhage.

CASE XXXIII. *Symptoms.*—Unconsciousness, which continued till death; hæmorrhage from left ear; dilatation of both pupils, and subsequent contraction of the right; muscular relaxation, followed by later rigidity; temperature on admission, 99.6° ; afterward 99.6° to 100.4° ; an hour post mortem, 101.2° . Death in twelve hours.

Lesions.—Deep laceration of posterior portion and inferior surface of left temporo-sphenoidal lobe, with consequent cortical hæmorrhage over occipital lobe; excessive cerebral hyperæmia.

CASE XXXIV. *Symptoms.*—Coma; stertor; loss of urinary control; hæmorrhage from nose and later hæmatemesis; pulse, 96 and full; respiration, 18; temperature, 100° , rising gradually to 102.6° some time before death, in fourteen hours after admission.

Lesions.—Small epidural hæmorrhage at site of fracture; rupture of dura; corresponding laceration in anterior inferior parietal region; laceration of anterior half of right middle temporal convolution; small laceration in center of left cerebellum filled with fluid blood; general hyperæmia, most marked on left side posteriorly.

CASE XXXV. *Symptoms.*—Unconsciousness; contraction of both pupils; rigidity of both lower and of right upper extremities; pulse and respiration too rapid to be counted; temperature, 101° , and in articulo mortis, 100.4° . Death in two hours. Temperature two hours post mortem, 99° +.

Lesions.—Pial hæmorrhage over left frontal and parietal lobes, superiorly and externally, and over region of right occipito parietal junction; subcortical laceration of left corpus striatum at junction of middle and posterior thirds; excessive general hyperæmia.

CASE XXXVI. *Symptoms.*—Coma; stertor; alcoholic condition; no superficial injury; muscular relaxation; face flushed; pupils slightly contracted; vomiting; temperature, 97° , continued to be subnormal; pulse, 60; respiration, 16; one general convulsion just before death, at the end of eight hours and a half.

Lesions.—Fracture through left occipital, parietal, and squamous portion of temporal bone to margin of petrous portion; laceration of inferior surface of right frontal lobe and both

temporo-sphenoidal lobes; pial hæmorrhage over whole right parietal region.

CASE XXXVII. *Symptoms.*—Consciousness lost but regained before admission after suicidal pistol-shot wound of the head; total loss of vision; exophthalmia of both eyes; dilatation of both pupils, which were irresponsive to light; temperature, 100.2° ; pulse, 60; respiration, 20. Ophthalmic examination by Dr. P. A. Callan on the second day disclosed only patches of retinal hæmorrhage; mental condition unimpaired; sense of smell entirely lost. On the fourth day an unsuccessful attempt was made to extract the ball, and a drainage-tube was afterward carried from the foyer of entrance through both frontal lobes to a cranial opening made upon the opposite side; followed for five days by discharge of brain tissue, and then till death by pus in increasing quantity. Mental condition normal till the fifth day, sluggish till ninth day, and afterward marked by increasing delirium, which lapsed into a muttering stupor at the end of life on the thirteenth day. Temperature at time of operation, 99° ; rose to 103.6° in ensuing twenty-four hours, and then varied from 102.4° to 104.5° on the last day; pulse and respiration nearly normal till just before death.

Lesions.—Ball penetrated external wall of the right orbit, just behind the external angular process; passed beneath optic nerve, comminuted inner wall of the orbit, crista galli, cribriform plate, and lesser wing of the sphenoid; entered left orbit through inner wall, and was found beneath left optic nerve. In the cranial cavity its course was beneath both optic nerves. Sub-arachnoid purulent effusion covered both frontal lobes, more copious on the left side and at the base; left frontal lobe was excavated and filled with pus and brain detritus; pus also existed in the tract of the drainage-tube through the right frontal lobe.

I am indebted to a colleague for the opportunity of observing this case.

CASE XXXVIII. *Symptoms.*—The patient, after having passed through three hospitals, with three discharges and two transfers, and after having wandered about the streets and suffered much exposure, was finally received and allowed to remain in an asylum for the insane on the eighth day after a fall from the stoop of her house. She had then delusions and other symptoms of mental derangement, left facial paralysis, left sub-conjunctival hæmorrhage, and hæmorrhage from both ears. She died on the twenty-fourth day from the reception of the injury.

Lesions.—Transverse fracture of the base, extending through both petrous portions and left orbital plate; laceration of inferior surface of left frontal lobe; small subcortical laceration of left parietal lobe; cortical hæmorrhage at base and over the external surface of both hemispheres; general contusion.

CASE XXXIX. *Symptoms.*—Profound coma, which continued till death; stertor; pulse, 70, full and strong; temperature, 99.4° . Death in seven hours.

Lesions.—Linear fracture through right side of the occipital bone to jugular foramen; pial hæmorrhage over both occipital and posterior portion of left parietal lobes; excessive general hyperæmia.

CASE XL. *Symptoms.*—Contusion of left parietal region; primary unconsciousness; epistaxis; delirium, which continued till admission to hospital two days later; unconsciousness at that time; pupils normal; pulse rapid and weak; respiration, 21; temperature, 101.4° , rose to 102° +; consciousness not restored. Death in four days.

Lesions.—Linear fracture of occipital bone from tuber to right jugular foramen; also fissure of left orbital plate; thrombosis of lateral sinuses; clot firm, but not decolorized; general hyperæmia, with a few minute coagula.

CASE XLI. *Symptoms*.—Unconsciousness succeeding an injury received on the preceding day; admission to hospital after twenty-four hours; right pupil slightly dilated; temperature, 99.8°; pulse, 96; respiration, 24; temperature rose to 100.2°. Death in about thirty hours from time of injury.

Lesions.—Linear fracture running nearly transversely through left parietal bone into right coronal suture; also V-shaped fracture from *contre-coup* in right middle fossa; epidural hæmorrhage over right frontal lobe from vertex to base; laceration of middle two fourths of second right temporal convolution, with cortical hæmorrhage extending over parietal lobe; general hyperæmia with minute coagula in all parts of the brain.

CASE XLII. *Symptoms*.—Shock; consciousness retained; temperature, 96°; pulse, 78; respiration, 21; sudden cyanosis, with extreme dyspnœa, and loss of consciousness which lasted for only three or four minutes, followed by numbness of both arms; no further dyspnœa; delirium fourteen hours later, and death four hours later still, preceded by a single convulsive movement and without respiratory disturbance.

Lesions.—Occipital contusion and wound behind right ear; bifurcated linear fracture in right inferior occipital fossa; pial hæmorrhage beneath tentorium, extending around lateral borders of cerebellum and covering the pons. Moderate general hyperæmia.

CASE XLIII. *Symptoms*.—Scalp wounds in left parietal and large hæmatoma in right parietal region; compound linear left parietal fracture; no known loss of consciousness; shock; dilatation of both pupils; pulse feeble; respiration shallow; temperature after four hours, 96.4°. Death in nine hours and a half.

Lesions.—Parietal fissure extended nearly across greater wing of sphenoid; considerable subarachnoid serous effusion; general hyperæmia and thrombosis of minute vessels, most marked posteriorly.

CASE XLIV. *Symptoms*.—Unconsciousness till death; pupils normal; muscular twitchings over whole right side of the body; temperature on admission, 98°; in six hours, 103.6°; in seven hours, 104.4°; in nine hours, 106.6°; pulse, 80 to 145; respiration, 15 to 34. Death in nine hours and a half.

Lesions.—Calvarium crushed; large wound in the skull at the vertex involving the median line, two by three inches in its diameters; on the left side the osseous fragments rested upon the dura, on the right they deeply penetrated the brain; a fissure extended into the right orbital plate; epidural clot on the left side in which the parietal fragments were imbedded; on the right side, disintegrated brain tissue, bone, and membranes were commingled; anterior part of both lateral ventricles contained blood; cortical hæmorrhage extended beneath the tentorium; general hyperæmia and vessels even of larger size filled with thrombi.

CASE XLV. *Symptoms*.—Scalp wound in left frontal region; left pupil dilated; consciousness only partially lost; temperature on admission, 98°; fell in four hours to 97.6°; pulse, 90; respiration, 24. Death in four hours and a half.

Lesions.—Slight depression at left external angular process of frontal bone and fissure, extending thence through both orbital plates and intervening ethmoid body; deep laceration of frontal lobes on either side of inferior median fissure; smaller laceration of posterior border of cerebellum, near median line, from which a cortical hæmorrhage extended over both its superior and inferior surfaces; general hyperæmia and minute coagula.

CASE XLVI. *Symptoms*.—Hæmatoma over whole vertex, and small wound of the scalp; unconsciousness which continued till death; dilatation of left pupil; general convulsions,

beginning in the hands, with marked opisthotonos; temperature six hours after reception of injury, 98.6°; pulse, 84; respiration, 28; extent of fracture determined by incision. Death in nine hours.

Lesions.—Disjunction of coronal suture, multiple fissure of frontal bone, and fissure through right parietal and occipital bones, with branch into posterior fossa; laceration of right frontal, parietal, and occipital lobes, and wound of dura permitting escape of brain tissue through the osseous parietal opening.

CASE XLVII. *Symptoms*.—Contusions of left side of head and face and tactile evidence of simple fractures; unconsciousness which continued till death; epistaxis and hæmatemesis; temperature on admission, 99°; pulse, 96; two hours later—temperature, 96.4°; pulse, 140; respiration, 53; five hours later—temperature, 95.6°; pulse and respiration as before; second day, deglutition became possible and sensitiveness to external impressions was regained; pupils slightly dilated; temperature, 103° to 103.6°; pulse, 168 to 196; respiration, 48 to 58. Death in thirty-four hours. (In this, the case of a child, four years and a half of age, the brain weighed forty-eight ounces, and was in all respects symmetrical; the skull was of normal thickness.)

Lesions.—Separation of the coronal and of the bifrontal suture to nasal bones, which were fractured; fracture continuous into ethmoid body, with complete detachment of the crista galli and cribriform plate; fissure of right parietal bone and depressed fracture of left frontal above orbital ridge; slight epidural hæmorrhage over the vertex; laceration of frontal lobes in the space corresponding to the site of cribriform plate; general hyperæmia with minute coagula, most marked in cerebellum and occipital lobes.

CASE XLVIII. *Symptoms*.—None discovered, and admission to hospital refused two days after a fall in the street; found dead two hours later a block away; wound over left eye.

Lesions.—Pneumonia involving lower lobe of right lung, and large, flabby heart; fracture extending through left supra-orbital ridge and orbital plate into greater wing of sphenoid bone; general hyperæmia and thrombosis.

CASE XLIX. *Symptoms*.—Large hæmatoma over right eye; profuse hæmorrhage from mouth, nose, and right ear; unconsciousness; rapid and feeble pulse and respiration; dilatation of both pupils, especially the left. Death in fifteen minutes. (Cæsarean section at six months and a half; child lived forty-five minutes.)

Lesions.—Separation of right *sutura additamentum lambdoidalis* and fissure continued, through petrous portion and middle fossa, into body of sphenoid bone; large pial hæmorrhage over left parieto-occipital region.

CASE L. *Symptoms*.—Wounds over left eye and at the occiput; shock; unconsciousness; hæmorrhage from ears, nose, and mouth; restlessness, and utterance of short, sharp cries; pulse frequent, weak, and symmetrical; respiration slow, irregular, and sighing; right pupil dilated, left invisible from ecchymosis; twitching of right side of face, followed by general convulsions, preceded death at end of twelve hours.

Lesions discovered by incisions: In left temporal region fissures ran into temporal fossa, and squamous suture was partially disrupted; in occipital region open fissure ran into right petrous portion and lambdoid suture was separated; arachnoid hæmorrhage in right occipito-parietal region.

CASE LI. *Symptoms*.—Scalp wounds in parietal regions; mobility and crepitation of calvarium; shock; unconsciousness which continued till death; slight epistaxis and profuse hæmatemesis; both pupils dilated, and after three hours and a half the right more so than the left; one radial pulse fuller and stronger than

the other; temperature on admission, 101°; in one hour, 102°; in two hours, 106°; in four hours, 106·8°; pulse, 70, 110, 160, 170; respiration in two hours, 48. Death in four hours and a half.

Lesions.—Fissure, beginning just above left internal angular process, running across middle of parietal bones, and nearly circumscribing the calvarium; another detached its posterior portion, and others still extended from the primary line of fracture to the base; arachnoid hæmorrhage on the left side; further examination refused.

CASE LII. *Symptoms.*—Contusion in left frontal region and ecchymosis of left eye; consciousness retained; hæmorrhage from right ear and from nose and mouth; delirium, becoming violent later in the day and during the night; on the second day, the patient formed a fixed delusion that he had fallen from a mulberry tree. He described with circumstantiality all the details of his imaginary accident. He had no recollection of the manner in which his injury had really occurred, and would give no credence to facts as they were presented to him; he had other and transitory delusions, but this one remained unalterable. Both pupils were moderately and symmetrically dilated. His mind became remarkably alert, and his conversation was logical and coherent. Nine days later hæmorrhage from the right ear recurred, subconjunctival hæmorrhage, which had been previously noted, increased, and the left eye became prominent. Mechanical restraint was still necessary to keep him in bed. On the twelfth day, hæmorrhage from the ear ceased, and subconjunctival hæmorrhage diminished; a scarcely perceptible facial paralysis existed. His mind seemed clearer; he could recollect the street and neighborhood in which he lived, but not the number of his house; only the one delusion persisted. Later, a frontal headache from which he had constantly suffered became less urgent; but his general condition was not materially changed till two days before his death, when he became progressively asthenic from an intercurrent diarrhoea. His mind remained clear with occasional transient delusions, his conversation coherent, and his belief in the mulberry tree unshaken to the last. Temperature on admission was 98·6°; one hour later, 100°; and five hours later, 104·7°; for the two days following it was 103° to 103·8°; and during the fourth and fifth days, 101° to 99°+; it varied till the twentieth day from 99·8° to 101·8°, only twice exceeding 100°. The pulse on admission was 85, and the respiration 20, with no considerable subsequent changes till near the close of life. Thirty-six hours ante mortem temperature rose to 102·4°, and twelve hours later to 105°; in another twelve hours it declined to 97·5°, and immediately before death rose again to 100°, with pulse 140, and respiration 42. Death on the twenty-fourth day.

Lesions.—Depressed fracture above left supraorbital ridge with fissure extending across both orbital plates and intervening cribriform plate, through right middle fossa, external to greater wing of sphenoid, through outer part of petrous portion of temporal into posterior fossa, and returning upon itself across the petrous portion and through the body of the sphenoid and ethmoid to finally terminate in itself anteriorly. A second fissure crossed the left orbital plate into the left middle fossa. Small epidural hæmorrhage beneath the depressed part of the fracture; laceration of under surface of both frontal lobes, mainly subcortical, crossing median line obliquely from center of left lobe to line of right anterior cerebral artery. This laceration was an inch and a quarter wide by an inch in depth at its commencement on the left side, and on the right side was five eighths of an inch in width by half an inch in depth. In removing the brain the arachnoid was torn and the diffuent contents of the cavity escaped; its margin and the

overhanging cortical tissue were dark and sloughy; its deeper portion was yellow and ragged; it was separated anteriorly on the left side from the median fissure by a single convolution. There were general hyperæmia and minute thromboses, most marked posteriorly.

(To be continued.)

REPORT OF A CASE OF EPITHELIOMA AND OF ONE OF SARCOMA OF THE LARYNX.*

By ARTHUR AMES BLISS, A. M., M. D.,
PHILADELPHIA.

CASE I. *Squamous Epithelioma of the Larynx.*—William B., aged forty-six years, married; printer. The family history of this patient was good, nor was there evidence of syphilitic infection. Tobacco, in the form of pipe-smoking, had been used in great excess.

The first symptoms which called the patient's attention to disease within the larynx originated about two years ago. It was then noted that the voice was slightly hoarse. This hoarseness increased steadily and was associated with slight soreness, which the patient could not locate exactly, but which he referred to the hyoid and subhyoid region. Gradually, interference with respiration developed and the lymphatic glands of the neck—most markedly on the left side—became hard and swollen. The three conditions of hoarseness, enlargement of the lymphatics, and dyspnoea notably increased, until, when the patient was first seen by me at the German Hospital, the act of inspiration was most difficult and the voice scarcely above a hoarse whisper. The conditions seen in the laryngeal mirror will be described later.

The patient delayed operative treatment until it was forced upon him by the extreme gravity of his condition. I performed tracheotomy in the high position, opening the first two rings of the trachea. This location was selected in preference to a lower opening, because of my expectation that consent would be gained for the performance of an operation for the removal of the growth at some subsequent time.

The patient's urine contained a considerable amount of albumin but was free from casts. As the heart sounds indicated atheroma, being weak and irregular, though free from valvular murmurs, we used ether as the anæsthetic. At about the completion of the first stage of etherization the patient's glottis closed tightly. No air entered the chest, the face became cyanosed, and the man was apparently moribund. This rendered a very rapid operation necessary. I am uncertain whether the closure of the glottis was due to spasm induced by the local irritation of the ether or was caused by accumulation of secretion from the growth. The patient remained in the hospital for about four weeks. At no time during this period could we have attempted a radical operation, as he was exceedingly weak and was liable to attacks of angina pectoris. Respiration was good, the general condition improved, and the man was on the point of leaving the hospital. The morning before the day chosen for his departure, however, he had an attack of angina pectoris and died suddenly from heart failure.

The view obtained by the laryngeal mirror revealed a large, swollen, partly œdematous mass of tissue occupying the seat of the left arytenoid, and involving the ventricular band of the same side. The left vocal cord was not visible, as it appeared

* Read before the American Laryngological Association at its sixteenth annual congress.

to lie beneath the swelling. The right cord was seen clearly, appeared to be free from disease, and its movements, though much restricted by the presence of the swelling on the left side, were normal. The swelling itself extended so far beyond the median line, however, that the right cord was forced into a position of semi-abduction. Below the level of the cords I could not obtain a view, and had no exact idea of the conditions existing there. Externally, there was no abnormal widening or stretching of the thyroid cartilage. At no time did the patient complain of pain during deglutition.

As a result of the autopsy I am able to present the larynx and also a very good photograph of the specimen. A large area of granulation tissue is to be noted, extending from



Squamous epithelioma of the larynx. Case I, William B.

the location of the apex of the left arytaenoid cartilage, over the entire left side of the larynx, extending as low as the inferior border of the cricoid cartilage. The left vocal cord has disappeared entirely. A probe passed through sinuses in the posterior part of this area which led into a sac between the larynx, in its left postero-lateral part, and the œsophagus. In this locality, within the cellular tissue between larynx and œsophagus, was a large abscess filled with greenish pus. The œsophageal walls appeared to be free from disease.

It would seem that the localization of this lesion to the left half of the larynx, and the fact that the wall of the œsophagus was not involved, would have rendered this case a favorable one for partial laryngectomy. The patient's family did not regard this operation with favor, nor was his general condition such as to encourage me in attempting this procedure. The autopsy showed the lungs to be normal. The pericardium was thickened, the heart muscle fatty, but the valves normal. The kidneys showed chronic parenchymatous nephritis.

CASE II. *Small Round-cell Sarcoma*.—John H., aged fifty-five years, married; laborer.

Family and personal histories are good. There is no evidence of syphilis. Tobacco, in the form of pipe-smoking, he has used in excess, smoking fifteen to twenty "pipefuls" daily, using, most commonly, a clay pipe. He has been a steady whisky-drinker, but showed no evidence of alcoholism.

About eighteen months before admission to the German Hospital the patient began to be annoyed by sensations of swelling within the throat, associated with hoarseness. Shortly after the onset of these symptoms the lymphatics below the angles of the jaw became enlarged. Six months before admission interference with respiration began to be noted; inspiration was attended with stridor; dyspnoea became very marked upon exertion; the patient suffered greatly at night from occasional attacks of suffocation, which increased rapidly in frequency and severity.

At my first examination I found the pharynx normal. The epiglottis was covered with a large fungoid mass which had altered its shape completely, and which caused such enlargement of the part as to render a view of the vocal cords impossible. Portions of the arytaenoid cartilages could be seen. The right arytaenoid was swollen and œdematous. Externally there was no swelling over the thyroid cartilage, but the suprahyoid tissues were much swollen, while the lymphatic glands at the angles of the jaw were greatly enlarged and of almost stony hardness. This condition was most pronounced upon the right side. Much pain was complained of, extending along the course of the right Eustachian tube. The patient's voice was reduced to a harsh-sounding whisper, occasionally breaking into a hoarse, resonant note. No relief to the symptoms followed the use of potassium iodide and mercury. Dyspnoea became so severe as to endanger the patient's life. A radical operation was refused, but the patient consented to tracheotomy. I performed the high operation, hoping that consent would be obtained for a more radical procedure later. Naturally, great relief followed the insertion of the cannula, but the patient was not to be persuaded to allow an operation for the removal of the growth. He lived for a year after the tracheotomy, continuing to wear the cannula, and died from exhaustion. His family would not allow a post-mortem examination to be made. A large piece of the granulation tissue, removed by a Mackenzie forceps from the epiglottis, was examined by Dr. Stengel, pathologist of the hospital, and the growth was pronounced to be a small round-cell sarcoma.

The patient never showed symptoms suggesting that the œsophagus was involved.

Both of these cases of laryngeal neoplasms, so far as the local conditions were concerned, appeared to be favorable for partial laryngectomy; yet how much this operation would have prolonged life in excess of that gained by tracheotomy is very doubtful. Dyspnoea of an alarming degree never occurred in either case after the insertion of the cannula. The case of sarcoma appeared to terminate in the normal way for such conditions. From all appearances the case of epithelioma would have continued living for an indefinite number of months had there been no cardiac or nephritic disease. My thanks are due to Dr. Stengel for his examinations and reports and to Dr. Page and Dr. Hand, residents of the hospital; to the former, for notes of the case of epithelioma and for preparation of the specimen; to the latter, for his excellent photograph of the larynx.

May 24, 1894.

A CASE OF SARCOMA OF THE TONSIL.*

By ARTHUR W. WATSON, M. D.,

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THAT sarcoma of the tonsil, although a rare affection, is not so infrequent as was formerly taught would appear from the long list of cases now on record and the fact that the list is growing rapidly. In his article on Malignant Disease of the Tonsil (*Am. Journal of the Med. Sciences*, 1892) Newman mentions having collected fifty-two reported cases. Since that time I have found ten more recorded, two of which were reported during the past winter.

Compared with carcinoma of the tonsil, sarcoma may be considered uncommon. The variety of sarcoma most frequently found in the tonsil is the round-celled; it is also the most malignant.

The following case is one of round-celled sarcoma:

Mrs. F., aged fifty-three years, a German, came to the throat clinic of the Philadelphia Polyclinic, January 15, 1894. She stated that she had been well, with the exception of an attack of influenza, up to Christmas day, when she was taken with a severe sore throat, which the physician who then attended her pronounced an abscess of the tonsil. She thought there had been a slight discharge of pus, but there had been no relief of the pain, which continued to increase. At the time of her first visit to the clinic she complained of continuous severe pain in the left side of the throat, aggravated by attempts at swallowing, especially solids. The pain extended to the ear, where it was very acute, effectually preventing sleep.

When the throat was examined there was found moderate swelling of the left tonsil, to which the anterior pillar of the fauces, thickened and spread out, was adherent. Both the tonsil and anterior pillar were greatly congested; a network of engorged capillary vessels could be seen covering the surface. There was general congestion of other parts of the fauces. One enlarged lymphatic gland, the size of a bean, could be felt beneath the angle of the jaw. There was no ulceration or infiltration of surrounding tissues, except the anterior pillar. The patient's general condition was good, although she was reduced from pain and loss of sleep.

At first, as the diagnosis was uncertain, she was given general remedies and local applications. As there was, from the history of the attack, a possibility of retained pus, and as the patient herself was possessed with the idea that she had an abscess, a deep incision was made into the tonsil. No pus, however, was found, but the bleeding was very free. Later, a piece of tissue was removed and was submitted to microscopic examination, which showed it to be a sarcoma of the round-celled variety.

As the patient readily consented to an operation, no more time was lost, and on the 14th of February, about six weeks from the onset of the disease, the tonsil and anterior pillar were removed. The operation was done under cocaine anæsthesia, the patient seated in a high-backed chair, and the head steadied by an assistant. The parts having been thoroughly cocaineized, the tonsil was caught with a tenaculum and drawn inward, and with a flat galvano-cautery knife was dissected out entire, together with the anterior faucial pillar. The dissection was made by short strokes of the cautery, and there was no difficulty in keeping the knife hot. There was no bleeding, and very little

pain until toward the last. For a few days after the removal of the tonsil there was considerable pain, but it was relieved by sedatives and gargles. After the operation the wound became covered with a thick, white slough, which in a week had cleared off, and a few days later the throat was entirely healed. Three weeks after the operation the following notes were taken: The patient can swallow without difficulty; the pain in the ear is almost gone; she sleeps well; the gland beneath the angle of the jaw has disappeared. The patient has been seen recently and is still doing well. It is now over three months since the tonsil was removed.

Some of the symptoms in this case are worthy of notice as being out of the common: The apparently sudden onset of the disease, simulating an acute amygdalitis; the marked pain and dysphagia, in the absence of ulceration or extensive infiltration. The first, I find, is noted in some of the reported cases. These symptoms certainly increased the difficulty of early diagnosis.

Removal of the tonsil by the cautery knife has been done in several of the reported cases. Thus, in the well-known case of Gorecki, in which no recurrence had taken place in two years, the thermo-cautery knife was used. In a case of epithelioma of the tonsil reported by Newman (*Am. Jour. of the Med. Sci.*), in which there was no recurrence, the galvano cautery knife was employed. Several operations are reported where the cautery loop was used; the results in some of them were very good; but I do not think the loop is as efficient as the knife, as it does not remove all of the gland, and can not be made to include other structures that may be involved. It seems to me that this method of cutting out the parts with the cautery is preferable to the use of the knife or curette, in that there is no hæmorrhage (an important point in operating in the mouth), the operation can be made thorough, and the wound is effectively cauterized—a precaution which is often taken after removal by the knife.

THE IMPORTANCE OF AN EARLY DIAGNOSIS OF MALIGNANT TUMORS OF THE THROAT.*

By J. W. GLEITSMANN, M. D.,

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ALTHOUGH I shall not be able to present any new facts in connection with this subject, I venture to make these remarks on account of recent observations which have left a lasting impression on my mind. It has fallen to my lot to see during the last few years an unusually large number of malignant tumors of the throat and its adjacent regions, and the unsatisfactory results obtained have very naturally created the desire to better, if possible, the chances of the patient.

When a patient calls on us in whom, after a careful examination and possibly prolonged observation, we have made the diagnosis of a malignant growth, there are, so far as the writer's knowledge goes, not many means open for us to deal with the affection. I shall not ventilate the

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question of the possibility of an operation in cases which are so far advanced that the decision has to be left to the patient, whether he will slowly die after the performance of tracheotomy to relieve stenosis, or take the risk of a probable death by an attempt at removal. I shall confine myself to speaking of three methods which are practiced at the present time, and which have been followed by cure in a certain number of cases.

The first method, which naturally has most interest for the laryngologist, is the endolaryngeal operation. It has been proved by a number of instances, to which I shall presently briefly refer, that not only temporary removal but also a lasting cure can be attained by this procedure. It is to be regretted that such opportunities are so rare, as in my opinion endolaryngeal treatment could be much more frequently resorted to if the patients came early enough for examination. The majority of those I have seen did not come directly to me on account of their throat trouble, but were sent by physicians, and in no case was endolaryngeal treatment feasible or rational.

The first endolaryngeal operation for epithelioma of the vocal cords was done by Schnitzler in the year 1867, with no recurrence twenty years later. He published a record of his operation as late as 1888, and was, therefore, antedated by B. Fraenkel, who demonstrated his well-known first case of a cure of laryngeal cancer *per vias naturales* before the congress of German surgeons, 1886. Fraenkel also relates in his treatise on cancer of the larynx five more cases operated upon in the same manner, the result of one of which is unknown; one patient was permanently cured, one had had no relapse in two years, another none in six months. In one patient the operation was a failure. Schnitzler also cites in his paper Türk, Mackenzie, Fauvel, Navratil, and Gottstein as endolaryngeal operators in this field. Finally, Schech removed a large laryngeal sarcoma with the galvano-cautery snare. These few citations, which are by no means intended to be exhaustive, illustrate sufficiently that in isolated suitable cases the endolaryngeal method is justifiable and entitled to a trial.

As I said before, the laryngologist has only very seldom the opportunity of trying his skill in curing or even completely removing a malignant neoplasm by methods pertaining to his specialty. We, therefore, have to look for other means, when the growth has transgressed the domain of our working power, or when the lymph glands have already become affected.

Fortunately, a short time ago a method was devised which seems to be efficacious in at least one class of malignant tumors—viz., sarcoma. I refer here to the method of Dr. Coley of inoculations of erysipelas and later on of its toxic products, obtained by the cold process. As Dr. Coley will read a paper on this subject before the Surgical Association, I feel somewhat restrained as to anticipating his statements, but he very kindly, at a personal visit, gave his consent to my giving his views to this association. His publications on this subject are to be found in the May number of the *American Journal of the Medical Sciences*, 1893, in the *Post-graduate* in August of the same year and

the Supplement of Wood's *Reference Handbook*, 1894. As this method seems to me a very important one, I beg your indulgence while I reiterate briefly what has already appeared in print and is well known to you. Dr. Coley states in the *Post-graduate* that he inoculated twelve patients with inoperable malignant tumors with the living cultures of the streptococcus of erysipelas, in four of whom he succeeded in producing a true attack of erysipelas. All four patients had sarcoma, one of them of the tonsil, which diminished considerably in size, and had not increased after two years. In Case No. 1, related in the same paper, the patient had a sarcoma of the abdomen and pelvis measuring five inches by seven inches. After three months' treatment the tumor was reduced to two inches in diameter, and by verbal communication on April 18th it was learned that the boy was perfectly well, only a very small mass remaining in the inguinal region. This patient, as well as five others, were treated with the toxic products. Dr. Coley further permits me to state that in Case No. 3 in Wood's Supplement, with sarcoma of the soft parts of the back seven inches by five inches, and metastatic growths in the groin, the patient had recurrence after surgical operation. The first and second series of injections were made with erysipelas, the third with toxic products, and the patient remains cured now, over a year. The doctor's cases were all inoperable; he has also noticed improvement, but no cure yet, in cancer, and he finally obtains the best effect when the injections are made into the tumor itself. The zeal and devotion with which Dr. Coley develops his mode of treatment promised to inaugurate a new era for such poor sufferers, and I have no doubt will also yield encouraging results in our special departments.

In this connection must also be mentioned the application of methyl blue to cancerous tumors, with which our New York colleague, Dr. Willy Meyer, has made extensive experiments. He has informed me that his results from local applications have not been very satisfactory, but better from internal administration.

As it is evident from the foregoing that only a very limited number of cases can be satisfactorily treated by the above-mentioned methods, we naturally look for surgery as the best means for relief.

As to the surgical aspects, the throat is not different from other parts of the body, and, if we choose two examples, the larynx and pharynx are analogous to the breast and uterus. By referring to the development of surgery in these last-mentioned two regions we shall find that, not many years ago, at a time when antisepsis was not practiced, the operation for removal of the breast for cancer was complicated with immediate danger, the mortality at the time being about thirty-three per cent., while now it is reduced to three per cent. After elimination of the danger of sepsis surgery grew bolder and the operations more numerous, and, when complete eradication could be accomplished, the number of cures became larger. The operation on the breast having once been established and recognized, the same principle was adopted for the uterus, and here also the results are good if the growth is endometrial and thoroughly removed.

If this argument is correct as to the breast and uterus, it must also hold good for the pharynx, larynx, etc., and we can go a step further and say for all accessible parts of the human body.

But, with all the strides surgery has made in technique and antiseptic methods, there is also a line drawn for the surgeon which stays his hands and compels him to lay his instruments aside. I am convinced from my own observations and from conversation with some of our representative surgeons that by far too large a number of cases are seen by competent men only when the patient has reached a stage where an operation is either impossible or extremely hazardous. All the gentlemen spoken to commit themselves unqualifiedly by saying that the majority of cases come to the surgeon at too late a stage for favorable results. Excepting traumatism and sepsis, delay in operating is the most potent factor for bad results in surgery. I willingly concede the difficulty of a diagnosis, especially of an early one, in many such cases, and also fully appreciate the delicacy with which some of them have to be treated before the final overture. But the diagnosis once having been made by the practitioner or consultant, delay from any cause whatsoever is unjustifiable and unpardonable. If a patient is horrified at the idea of an operation, he can easily be induced to submit to it when told that he has a tumor in his throat which, if not removed, would grow and endanger his life. Many of my patients have been operated on without the word "cancer" ever having been mentioned to them either before or after the operation.

Although laryngology embraces only a small part of the human body, the same considerations hold good in this region as in others, and the laryngologist can speak the more forcibly as to the necessity and the frequent neglect of an early diagnosis, as he can not be accused of any selfish motives, in view of the fact of his not being the operator in the majority of cases. It is not within the range of this paper to discuss the merits of the different operations, and it must be left to the surgeon in each individual case to decide if he will perform tracheotomy only, or extirpate the larynx *in toto*, or do modified laryngectomy, as recommended by our esteemed member, Dr. J. Solis-Cohen, in suitable cases, or practice laryngofission. As to the latter, the record of the Russian surgeon, Pieniazek, deserves mention (*Zeitschrift für Chirurgie*, vol. xxxvi), he having published a series of thirty-seven cases of laryngofission done with the head hanging down, and followed by two deaths only, one from diphtheria, the other from tuberculosis.

I shall not tax your time or patience with a history of my patients, but only give a short *résumé*. Of a total of thirteen cases, the pharynx was diseased six, the larynx seven times. Carcinoma of the pharynx was seen four times—at the lateral wall, at the posterior wall, at the palate, and at the base of the tongue, implicating the epiglottis at the time of first examination. The patient with affection of the palate was operated upon three months ago, and feels well at present; the others died. Of two cases of sarcoma of the tonsil, one proved inoperable, in the other the patient lived over two years without recurrence after removal of the tonsil, tongue, and infiltrated submaxillary glands, but committed

suicide, being unable to earn a livelihood. As to the larynx, six patients had cancer, and all six are dead; one with alveolar sarcoma is living without recurrence, according to latest report obtainable. Laryngofission, with removal of diseased tissue, was performed twice; unilateral as well as total extirpation, twice each; tracheotomy alone, in a far advanced case, once. The growth had its origin, so far as could be ascertained, twice at the ventricular bands, with implication of Morgagni's ventricle; twice at the vocal cords; once at the glosso-epiglottic and arytaeno-epiglottic folds; and twice its origin could not be determined, as the larger part of the larynx was filled with the neoplasm. Death ensued twice from shock soon after the operation, twice from pneumonia on the second and third day; one patient had a recurrence after six months, and died subsequently from exhaustion. The last one, with total extirpation of the larynx, did very well for several months, the wound had healed kindly, and the patient had regained his strength. He awaited with impatience the insertion of an artificial larynx, which had been imported from Europe, when he suddenly died from appendicitis.

It is, of course, impossible and fruitless at the present time to reason as to how many patients would have survived the operation and lived without recurrence of the growth if they had not died from shock or intercurrent affections. But it is clear, at least to my mind, that the number of survivors would be larger if they had come earlier to examination, and an operation involving less risk and less loss of tissue had been possible.

If I have in my remarks entered more fully into the treatment of the subject than the title of the paper indicated, it has been done for the purpose of showing the futility of our attempts at relief when the neoplasm has reached a certain dignity as to its extension, and to appeal earnestly to the profession at large to make an early diagnosis of malignant tumors of the throat.

A PLEA FOR EARLY OPERATION IN DISEASES OF THE ANTRUM OF HIGMORE.*

By W. H. DALY, M.D.,
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SINCE the antrum is a closed cavity, excepting through a single opening by which it is closely related with the nasal, buccal, and other cavities, it of necessity follows that any disease of it may soon produce morbid conditions in one or more of the other accessory cavities.

This may follow the drainage of pus into the nasal cavity with subsequent inflammation of the mucous membrane. It may follow the obstruction of the separating bony wall by pressure, absorption, caries, or necrosis. There is also serious liability to damage to the eye, so that I make the plea that for all conditions in which severe inflammation, pus, tumors, or necrosis are present we should,

* Read before the American Laryngological Association at its sixteenth annual congress.

as soon as the diagnosis is established, deal with the condition surgically, in order that the integrity, not only of the antrum itself, but the surrounding parts, is maintained to the greatest extent possible; and even if there is some doubt existing as to the disease of the antrum, or in cases that are otherwise somewhat masked, I would strongly advise an exploratory opening for diagnostic purposes, which may be made very small and yet efficient, and one which will close and heal up in a very short time if sufficient disease is not revealed to call for keeping it open.

I have had many cases of chronic as well as malignant disease of the antrum to deal with in the past twenty years, and the sum of my experience is, that for want of early diagnosis and operative treatment some of the patients have perished that with early operation could certainly have been permanently cured.

I am not quite sure that the specialist in rhinology is not sometimes to blame, as well as the general practitioner, for not taking early and active surgical measures in these cases instead of resorting to ordinary topical or medical treatment.

In August of 1888 I had a conversation with Mr. Lennox Browne, in London, on the subject of early operation on the antrum of Highmore.

He was then engaged in treating a number of cases, and making some observations upon their pathology and ætiology.

Mr. Browne began by asking me the question, Do you see many cases of purulent catarrh of the antrum of Highmore in your practice? I told him I had seen a rather large number of them, and had reported two cases to the American Laryngological Association as early as 1882, six years before;* since that time some twenty-seven cases have fallen under my care, and I now have four cases under surgical treatment.

I was then, as I am now, in favor of early operation, whenever it is possible to see the cases early. In this view Mr. Browne agreed fully, and I see he has publicly verified his opinions by publishing in the March 31, 1894, number of the *British Medical Journal* a case, of which the following is a summary:

The patient, a young woman, aged twenty years, had been attacked with influenza about six weeks previously to presenting herself at the hospital. On the subsidence of the acute stage, she suffered severely from toothache, which involved the first and second bicuspid teeth in the right upper jaw; subsequently she experienced severe pain with swelling of the right cheek, which somewhat subsided on the occurrence of a yellow and rather thin discharge from the right nostril.

After removal of the first bicuspid, the antrum was opened through the socket, the cavity was curetted and syringed out with a weak antiseptic solution, and the hole kept open by a hickory-wood plug.

The cure was complete in a few days, thus distinguishing it from cases of a chronic nature, the characteristic of which is their strong resistance to treatment.

This was not the first example of acute inflammation of the antrum which Mr. Lennox Browne had had to deal

with, and now that attention had been drawn to the subject, the malady would in all probability be found to be less rare than had been hitherto considered.

Through the esteemed courtesy of Dr. G. Lenox Curtis, of New York, I was permitted a few weeks ago—in the early part of May, 1894—to examine a number of his cases of antral disease which he has operated upon at various recent periods.

Nearly all of the cases, excepting one or two, submitted to my examination by Dr. Curtis were of a non-specific type, and one of the exceptional cases was a most unusual one—viz., symmetrical in character, though not simultaneously so, the right side having been operated upon some months ago, and the left side was, at the time of examination, giving such evidence of disease as to call for operative interference. A curious phase of this case was the patient's ability to take a mouthful of cleansing or antiseptic fluid, and by a self trained voluntary, atmospheric and bucco lingual pressure cause the fluid to flow from the buccal cavity through the antrum and out of the nostril.

I am under the impression that with a little teaching other patients could learn as well to do this, as, for example, when traveling, it is not always possible for a patient to use a syringe, and cleanliness must be observed to get desired results.

I should qualify the remark about the above case of double antral disease by saying that while non-specific double cases are rare in my experience, we all know that a strong characteristic of syphilitic disease, even throat or palatal ulcerations or patches, is their usual symmetry. So this case of double antral disease, while it might be unusual as simple catarrhal disease, is another evidence of the symmetrical characteristic of specific disease.

As to the point of election for entering the antrum, I am of the opinion that the natural opening is not desirable, as it seems too much like trifling with treatment to endeavor to cleanse this cavity with a small syringe, with a curved point, entered at the natural antronasal opening; better far to make an opening either through the alveoli, the socket of a tooth, or through the bony wall of the antrum just below the malar bone, about the region just external to and above the second bicuspid tooth.

While I was formerly in favor of making a large opening, I find, after experience, that the opening should never be larger than a small goose quill, as a large one may cause whistling by air currents and permits the entrance of food.

In my opinion, the best means of cleansing the cavity is with the ordinary soft rubber compression-bulb syringe of the Davidson pattern, and a proper-sized tip. This affords nearly a continuous flow, with which a pint of antiseptic fluid can be pumped through the cavity and allowed to flow out through the naris, carrying with it the diseased secretions.

Care should be taken to break down the lamellæ of bone that sometimes exist in the diseased antrum, confining the pus or other inflammatory products. This can be done by entering a strong, curved, steel exploratory probe or curette.

I have more than once trephined the antrum, and experienced a feeling of disappointment and surprise until I

* Naso-antral Catarrh and its Treatment. *Archives of Laryngology*, vol. iii, No. 4, October, 1882.

had, by exploratory breaking down of the lamellar walls or partitions, released purulent matter of a most sickening odor. Always remove all necrosed bone or teeth that may be found in the cavity of the antrum.

The operation is of the simplest character, and is best done by using a conical burr-headed drill, which, with slight pressure, enters the cavity.

The results of the operation, however, are by no means always free from danger, since some of us can call to mind that one of the most talented of men, Dr. Beard, of New York, died some years ago, in less than a hundred hours, from septic pneumonia following an operation for antral disease by Dr. Goodwillie, of New York, a most clever operator, and a gentleman of large experience in this class of cases.

I have also frequently observed serious constitutional disturbance following the operation, but no fatality in my own practice.

It is true that, in cases of chronic catarrh of the antrum with suppuration, treatment may be carried on through the natural opening into the nasal cavity; but this is difficult and unsatisfactory, and certainly the most rational course is trephining at the most dependent part, and thus securing good drainage and an opportunity to effect thorough cleanliness and the application of local remedies.

By the introduction of a plugged cannula or simple wooden plug the swallowing of the discharges, with consequent gastric disturbance, may to a great extent be avoided.

Further, in cases of abnormal growths, being confined as they are in a closed space, early surgical methods ought to be adopted for their removal.

It goes without saying that growths and necrosis in any location should be thoroughly removed; but when the antrum is involved this removal should be at the earliest possible moment.

In cases of foreign growths, especially those that have passed from the region of the benign into that of the malignant—a condition that is a very probable one in a large percentage of cases—then we have a condition to deal with that calls for most serious surgical consideration, since nothing short of removing bodily all of the diseased structures, whether bony or soft, will at all insure safety from a return of the disease.

A number of these undesirable cases have in the past ten years fallen under my professional care for the purposes of surgical operation, and I candidly say I always shrink from the professional responsibility of them, as the percentage of malignancy is large among them, and the operation so often involves the removal of all of the malar and generally a part of the superior maxillary and nasal bones, together often with the floor of the orbit and sometimes the eye.

That the death-rate is large and the operation itself of the most appalling character, and that the disease is liable to return, can not be doubted, and hence an added plea for early operation.

In a large proportion of my own cases, as well as that of other specialists, I learned that, especially in the severe cases, the pain is always referred to the region above the

eye. Now, why that is the case it is difficult to explain and I shall not attempt it, but the clinical fact remains and is worth noting. It is illustrated by the following:

CASE I.—Mrs. J. M. K., aged fifty-four years, married, mother of five children, never very robust, suffered from malaria for several years. No history of other sickness previous to present one. In December, 1891, complained of an oppressive feeling in head, part of the time being confined to bed.

January 1, 1892.—Dr. W. N. Bailey, of East Liverpool, Ohio, family physician, was called and prescribed for malaria.

2d to 8th.—Away on a visit; suffered greatly; had some dyspnoea.

On February 29th Dr. W. N. Bailey was again called. Patient complained of pain above the left eye, beginning about 9 A. M., gradually subsiding toward evening. Weak with loss of flesh. All remedies prescribed gave no relief.

March 3d.—Nasal cavities examined and growths, diagnosed to be nasal polypi, discovered.

4th.—With cocaine, with a Jarvis snare, a part of the growth which had impacted the nasal cavity was removed. Operation interterred with by hæmorrhage. Much relief afforded. Operation repeated with like result on March 14th, 22d, and 29th.

April 13th.—I was called in consultation by Dr. W. N. Bailey. I trephined and curetted the antrum, and, with the doctor's assistance, removed a quantity of polypoid myxomatous masses, equal in amount to the capacity of the antrum.

The hæmorrhage was very copious, and the eyeball, which was protruding on the same side, gave evidence of much more mischief to be feared, and on June 16th the doctor sent for me again to come prepared to remove the entire mass, which had grown very rapidly since clearing out the antrum on April 13th.

I found the eye much more protruded; the face swollen and distorted; the discharge through the naso-antral opening sanious and offensive. There was some enlargement of opening by ulcerative absorption at the seat of the last operation through the alveolus.

With the assistance of the late Dr. James McCann, of Pittsburgh, Dr. W. N. Bailey, Dr. W. R. Clark, and Dr. J. M. Kelly, of East Liverpool, O., the latter a son of the patient, I did Langenbeck's operation, carrying an incision from the edge of the lip upward, following a line along the nose to near the naso-orbital angle, thence laterally along the lower rim of the orbit and eyelid to a point below the outer canthus of the eye, dissecting this flap back and fastening it out of the way.

I then cut through the ala nasi and sæptum and laid the nose over to the other side; then with a saw and strong cutting and lion-jawed bone forceps I proceeded to remove half of the upper jaw, malar bone, part of the ossa nasi, including all of the bony walls of the antrum. The floor of the orbit was found absorbed by pressure of the growth.

The hæmorrhage was tremendous, and as no blood-vessels could be found with sufficient strength of walls to permit torsion or ligation, we were much delayed by having to resort to packing the rather appalling cavity made by the removal of the diseased tissue. The eye was left in a faint hope that it might be preserved. The superficial parts were brought together with silver-wire sutures, the nose being replaced and all nicely completed, first packing the cavity with iodoform gauze.

Some idea of the cavity left by the removal of the diseased mass of bone and soft tissue can be formed by the fact that about three yards and a half of iodoform-gauze bandage three inches wide was required to pack the chasm.

As the ossa nasi of the diseased side was also removed, there was no trouble about sufficient outlet in removing the packing and restoring fresh. The hæmorrhage was controlled, and the

patient, who was a very courageous woman, rallied, and under the care of Dr. W. N. Bailey promised fairly for the three days following the operation; but on June 19th there were slight rigors followed by some elevation of temperature.

June 22d.—Paralysis of right side.

23d.—Clonic convulsions, which continued until death on January 25th.

I had in the meantime submitted a specimen of the tumor to Professor Matson, of Pittsburgh, an accomplished pathologist and microscopist, who pronounced it a giant-celled sarcoma.

CASE II.—J. H., male, aged forty-four years, married. Father died of pulmonary disease in May, 1892. Noticed pain over right eye; most felt in the evening and at night; rest broken.

August, 1892.—Dr. Treacy, the family physician, with Dr. McLaren operated upon the case by drilling into the antrum through the hard palate, and, following treatment of the cavity, there was relief.

In January, 1893, patient caught cold, and had intense pain again above the eye of the affected side, and he sought again his family physician, Dr. Treacy.

There was not much swelling or pain about the antrum, but a blister formed on the hard palate about the seat of the former trephining.

Some teeth were now removed by Dr. McLaren with relief of the pain.

November 29, 1893.—Dr. Treacy sent the patient to me for treatment. His face was much distorted by swelling on the right side and the eye protruding. A large swelling in the submaxillary triangle of the same side of the size of a goose egg. Pain intense over right eye. General condition of the patient was very bad. The discharge from the naris on the affected side copious and foul to an extreme degree.

I trephined the antrum the following day and removed a quantity of blackish-brown masses coequal with the antral capacity. These masses resembled old coffee grounds; they had a heavy, sickening, burned-chestnut odor.

After getting the patient cleaned up by antiseptic washes and free use of iodoform, I poulticed the swelling on the neck, and, with the exhibition of arsenic, cod-liver oil, and malt, in three months the tumor disappeared by absorption and the case was in a most promising condition. A cauliflower-like excrescence around the large opening I made in the antrum disappeared also, and I flattered myself for a time that the case had broken the record by turning from the threatening malignant to the benign; but untoward changes again occurred, largely from the erratic habits of the patient, and now at this writing, May 12, 1894, the case involves the eyeball, all of the malar bone and upper jaw of the affected side, the ossa nasi, and the disease is undoubtedly malignant.

An operation is under consideration by the patient, in fact, has been under consideration ever since the time when the conditions were favorable and safe, which I regret to say they now no longer are.

This patient disappeared some six weeks ago, when I advised that he allow me to cut down and remove a part of the ossa nasi and the upper and inner part of the antral walls. He declined being operated upon then. However, he returned about four weeks later, mentally ready for the operation; but in the meantime the case had, in my opinion, progressed beyond the reach of safe operative measures, at least beyond the point where hope for the non-return of the disease is assuring, and he passed from my professional care.

Note.—Six weeks later I learned that this patient had been operated on by a surgeon of Pittsburgh who removed all the diseased mass except

the protruding eyeball. Death followed in a few weeks. I could adduce many other cases from my note-books which would serve to strengthen my plea for early operations on the antrum.

ROSACEA: ITS CAUSE AND TREATMENT.

By ELLICE M. ALGER, M.D.,

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ROSACEA is one of the commonest of skin diseases, and occasions great annoyance to the average patient; partly by reason of its conspicuous blemish, and still more from the constant suspicion it entails as to its cause.

Like a good many other cutaneous troubles, it is either neglected entirely by the family physician or badly treated; whereas much can be done in all cases to lessen the patient's disfigurement, and in many a complete cure can be effected.

In its origin the disease is very insidious, beginning first as a mere temporary hyperæmia of the nose and cheeks, following some cause which generally can be very readily discovered. In process of time a stasis of blood occurring at frequent intervals results in a dilatation of the minute capillaries of the skin which is very noticeable.

This constitutes the first stage of the disease, and during its continuance the congested parts present an appearance of active inflammation, which is, however, entirely fictitious.

This stage is almost always associated with a certain amount of seborrhœal supersecretion. At the same time there may develop a large number of superficial papules, pustules, or tubercles, which, however, when opened contain very little pus. In the majority of cases these pustules come only after the hyperæmia has lasted a long time, and constitute the second stage. In a very few cases, almost entirely in males, a third stage can be described, consisting of a gradual thickening of the skin and connective tissues of the nose, which may become enlarged almost beyond belief. As a rule the disease is easily recognized by the appearance of redness confined to the middle third of the face and caused by dilated vessels; by the occurrence of superficial pustules which differ from those of acne by their size, location, and in being secondary to the hyperæmia. It occurs most frequently in adults, especially in women, and is more or less symmetrical.

The causes of the trouble are many. A person with a marked rosacea is always mentally accused by the laity of being more or less intemperate.

Undoubtedly alcoholics, from their power of dilating blood-vessels, do, when continuously used, cause a permanent hyperæmia, and certain authors can distinguish a difference in the color resulting from their use in different forms; but in certainly fifty per cent. of my cases I have succeeded in finding some other distinct cause, and this too in dispensary practice. So in justice to humanity we should do our best to contradict the idea that a red nose is a sure sign of intemperance. In women especially the continuous use of hot tea is a frequent cause, partly by reason of the chronic gastric insufficiency which may re-

sult and partly by reason of the relaxing effects of the hot liquid on the blood-vessels.

Menstrual irregularities are also frequently associated with rosacea, but whether they act directly or only through the profound nervous and digestive disturbances that accompany them is as yet in doubt. In men, exposure to wind and weather is a frequent exciting cause, often complicated by intemperance or gastric derangement.

In both sexes constipation, anæmia, and chlorosis often seem to be the causes of rosacea, while one of the worst cases I ever saw was caused by the continuous application of hot poultices to the face for a period of two weeks.

The treatment is varied, and no one inflexible rule can be laid down. Each case must be treated by itself after a careful study of its cause.

We must first limit the patient's diet to food which contains a maximum of nourishment while entailing a minimum of digestive labor. Hot drinks and alcoholics should be entirely interdicted. Fats and sugars are usually badly borne, and excess of every kind should be carefully guarded against. At the same time digestion, if imperfect, should be assisted by bitter tonics or digestants of some kind. A very useful prescription is—

R Acid. hydrochlor. dil., }
 Tinct. nucis vom., } āā ʒ ij;
 Tinct. gentian..... ʒ ij;
 Elix. calisayæ..... ad ʒ iij.

M. Sig.: A drachm three times a day in water, before meals.

In certain other cases I have had excellent results from resorcin, five grains three times a day. Salol and ichthyol in about the same doses have also been highly praised.

Constipation and anæmia must, of course, be properly treated, and cases due to menstrual derangement will often respond remarkably to treatment in that direction.

Ergot is highly recommended by some authorities for its contractile action on the capillaries, but personally I can not claim much effect from it, and its abuse is only too common.

Local treatment is of great service, but often the temptation is to neglect for its sake the internal treatment which is really the more important. It does best in those cases caused by exposure to the elements.

Such patients should always keep the face protected against storms or changes of temperature by ointment or powder of some kind. Most of the prescriptions which have an astringent effect on the skin are valuable, like the well known "lotio alba":

R Zinc. sulph., }
 Potass. sulphid., } āā ʒ j;
 Aq. rosæ..... ʒ iv.

Or resorcin, ʒ jss., to petrolat., ʒ j, or ichthyol ointment, five to ten per cent.

All these applications had best be preceded by bathing the face in very hot water for a period of ten minutes two or three times daily. The first effect is apparently to increase the capillary engorgement, but the temporary dilatation is followed by a more permanent contraction. In the second stage it is always a very good plan to scrape the

nose and cheeks with the dermal curette, removing the pustules and stimulating the skin very vigorously. If in spite of all these efforts the vessels still continue prominent, more vigorous treatment must be resorted to. An old method, not much used now, was to slit the vessel open with a knife, hoping that it might be replaced by a firm white scar not nearly as disfiguring as the red capillary. In some cases benefit arises from a process of scarification, covering the whole congested surface by a series of cross-cuts like those sometimes made in vaccinating little children. The cuts should just penetrate the skin, and bleeding should be encouraged. Afterward it can be stopped by applications of carbolic acid in glycerin (1 to 5).

This method is slightly painful, and many times has to be repeated.

For the occlusion of single dilated vessels electrolysis offers the speediest and most satisfactory method. A fine needle is attached to the negative pole of a battery containing at least ten cells, and the point inserted perpendicularly into the vessel. A well-moistened sponge electrode, attached to the positive pole, is held in the patient's hand and a current turned on according to his fortitude. Over a milliampère and a half is rarely required. Soon a white spot appears at the point of the needle, which rapidly extends into a line running along the vessel, which is then permanently occluded. This process is to be repeated according to the extent of the case. The immediate result is a slight local inflammation at the site of the puncture, which generally disappears in twenty-four hours. The pain is slight, though it varies in different patients. The same plan can be used with a bunch of needles instead of a single one when the affected surface is large, the needles being thrust barely through the skin and allowed to remain till a slight frothing takes place about them. Much the same effect can be produced by the application of the actual cautery in the shape of a hot needle or needles. It is too soon to say much about the cataphoretic method with the electrical current and a metallic soluble electrode, but it promises well. When such a multitude of things can be done, it is a pity so many cases should be allowed to get incurable from neglect.

139 EAST TWENTY-EIGHTH STREET.

NOTES ON THE PEPTONIZING OR DIGESTIVE ACTION OF STERILE TISSUES OF ANIMALS.*

By THEOBALD SMITH, M. D.,
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In the course of the present year the writer's attention was called to this subject during the study of cultures made with rather large pieces of tissue from the organs of rabbits. After most of the facts to be recorded had been collected a few stray references which fell into my hands showed that this subject had been approached from

* From the pathological laboratory of the Bureau of Animal Industry.

several different directions by others. To these I shall refer after giving very briefly my own observations. These penetrate but slightly into the subject, which I must leave for extension and elaboration to those more favorably situated.

The first intimation that the normal, bacteria-free tissues of rabbits can liquefy the ordinary nutrient ten-per-cent. gelatin came in the following way: A male rabbit, weighing about four pounds, received April 10, 1894, into an ear vein 0.5 cubic centimetre of a bouillon culture of an artificial non-liquefying variety of *Proteus vulgaris*.* The rabbit did not become manifestly ill, and when it was killed with chloroform on the thirteenth day no lesions were found. In order to determine whether the injected bacilli were still present in the organs, about a third of the spleen was dropped into a tube of bouillon and another third into a tube of gelatin. A piece of the liver equivalent to about half a cubic centimetre was dropped into another tube of gelatin. On the third day slight liquefaction around the piece of spleen was noticed, but no growth of bacteria. On the fifth day slight surface liquefaction was noticed in the liver tube. In both gelatin tubes there was indication of growth on the seventh day with characteristic swarming in one tube. Both contained *Proteus*. The simplest interpretation of the condition was that *Proteus* had regained its peptonizing function in the body of the rabbit. This hypothesis, *a priori* an improbable one, was disposed of by the fact that inoculation of fresh gelatin gave rise to a non-liquefying growth. Another hypothesis presented itself, to the effect that this culture of *Proteus* was still able to manufacture a peptonizing ferment from the animal tissues in which it happened to be. This could only be tested by experimenting with sterile tissues.

A large female rabbit was chloroformed and tubes of gelatin were inoculated as follows:

No. 1. With about a third of the spleen.

No. 2. With about a third of the spleen.

No. 3. With a piece of liver tissue equal in size to the bits of spleen.

Liquefaction was observed on the second day, and slowly progressed downward from the surface where the tissue lay. In four days liquefaction had progressed in—

No. 1 to a depth of five millimetres.

No. 2 to a depth of ten millimetres.

No. 3 to a depth of five millimetres.

On the twenty fifth day liquefaction had progressed in—

No. 1 to a depth of ten millimetres.

No. 2 to a depth of twenty-two millimetres.

No. 3 to a depth of ten millimetres.

The liquefied gelatin was limpid in No. 2 and somewhat clouded in No. 1 and No. 3. In neither, however, could bacteria be detected either with the microscope or in subcultures. After forty days the three tubes were re-examined. In No. 2 all the gelatin (seven cubic centimetres) had become fluid while remaining limpid. In No. 1 the liquid gelatin was 1.5 centimetres deep; in No. 3, 1.8 centimetres. When placed in ice

water at 7° C., No. 2 did not congeal. The others congealed, but much more slowly than a sterile control tube.

The activity of the liquefying power varies more or less from animal to animal. In the following it was quite weak.

A rabbit weighing three pounds was chloroformed and cultures made with bits of tissue as large as beans from the following organs:

Nos. 1 and 2, from the spleen.

No. 3, from the liver.

No. 4, from a kidney.

Liquefaction was noticed after two days. It progressed very slowly, and after a month a layer of liquid gelatin from five to ten millimetres deep was present in the tubes. Subcultures made from Nos. 1, 2, and 4 remained sterile.

To determine whether the use of chloroform might develop or at least increase the peptonizing power of the organs, a rabbit weighing three pounds was killed by a blow and portions of the organs dropped into tubes of gelatin as follows:

No. 1 received about a sixth of the spleen.

No. 2 received about a third of the spleen.

No. 3 received a piece of liver equivalent to that in tube No. 2.

These tubes were placed in the thermostat to hasten the peptonizing process. On the fourth day they were tested in ice water at 10°–12° C. No. 2 did not congeal at all. No. 1 congealed much more tardily than a control tube of the same gelatin. No. 3 became very thick. Subcultures from Nos. 2 and 3 remained sterile.

In addition to the cases cited and others of a similar character, the organs (spleen, liver, and kidneys) of four rabbits which had survived inoculation with an attenuated culture of hog cholera bacilli were utilized. In the cultures made from bits of organs in bouillon and on agar hog-cholera bacilli appeared. We may assume that they were present in all the gelatin tubes inoculated; their growth, however, is always very feeble in gelatin. Since they do not liquefy gelatin, the results obtained may be legitimately used to swell the number of experiments. It is scarcely necessary to give the details of these cases, as the cultures presented the same features as those described above. It should be stated that the rabbits were to all appearances fully recovered when they were chloroformed.

In one case the spleen of a rabbit which had died during the night as a result of inoculation with virulent hog-cholera bacilli was used next morning. The two cultures made became liquefied much more rapidly than had been observed with previous cultures. Subcultures demonstrated in both a liquefying bacillus.

The results obtained with these cultures (if such they may be called) may be briefly summarized: They show that the spleen of rabbits is capable of peptonizing the ordinary ten-per-cent. gelatin, one third of the spleen, or a bit as large as a bean, being capable of bringing seven cubic centimetres of gelatin into the liquid state at 20° C. In some instances the gelatin remained liquid at 10° C., or became oily in consistence. The gelatin remained limpid unless the spleen contained much blood. The amount of liquefaction evidently varied with the quantity of spleen tissue.

The liver exerted in every case less peptonizing power

*For the source of this culture see the writer's article on The Modification, Temporary and Permanent, of the Physiological Characters of Bacteria in Mixed Cultures, in the *Transactions of the Association of American Physicians*, for 1894, p. 85.

than the spleen. Seven cubic centimetres of gelatin were not made watery at 20° C., but oily or barely liquid. It usually became clouded. In a few cases only was contamination with liquefying bacteria noticed. The kidney exerted in most cases slightly less peptonizing power than the spleen, but always more than the liver.

Liquefaction progressed most rapidly in the thermostat. When, however, the amount of liquefaction is slight, it may be overlooked unless the gelatin is kept solid and the bit of tissue at the surface. In a few cultures a slightly clouded gelatin was cleared up for a distance of five to ten millimetres beneath the piece of tissue.

The peptonizing action of the organs of the guinea pig seems to be much feebler than that of the rabbit. Only two animals were tried. In one case gelatin tubes containing pieces of the spleen manifested only the slightest softening at the surface. In the other case the evidence was more positive. A healthy guinea-pig was chloroformed, and three fourths of the spleen, one third of a kidney, and an equivalent fragment of the liver were placed in gelatin tubes. After a week's stay, at 20° to 25° C., no softening was apparent in any tube. They were then placed in the thermostat, and after three days placed in water at 20° C.; the control tube became solid first, and immediately after the liver tube. The kidney and the spleen tube remained soft for ten minutes longer, and then congealed. After another week's stay in the incubator both the kidney and the spleen tube remained fluid at 20° C. Control tubes of bouillon, inoculated by transferring the bits of tissue, remained clear. The superior peptonizing power of spleen and kidney over liver is thus shown for the guinea-pig also.

Concerning the cause of the liquefaction of gelatin, it will be generally conceded, I think, that enzyme action is the most satisfactory explanation at present. This action is allied to that of trypsin, since it goes on in a feebly alkaline medium. Leaving the physiological problems connected with this subject untouched and turning to its pathological bearing, we find several references at hand. In 1887 N. S. Davis, Jr. (1), pointed out the importance of intracellular and extracellular digestion in pathological processes, without, however, supplying any new data. Leber (2), in his important monograph on inflammation, mentions the fact that bacteria-free exudates of a fibrino-purulent character may produce a partial liquefaction of gelatin. He placed such exudate on the surface of gelatin, and found it gradually sinking in. He argues that the agents responsible for the suppurative softening of tissue, as in the formation of abscesses, the extrusion of foreign bodies, etc., are the leucocytes.

Grawitz (3), on the other hand, states that pus produced with turpentine exerts no liquefying action on gelatin even when mixed in the ratio of 1 to 1.

In a very recent publication Berestnew (4) states that leucæmic blood causes liquefaction of gelatin and of coagulated blood serum, while normal blood has no such power. This action is referred by him to leucocytes. In harmony with this hypothesis he found actinomycotic and gonorrhæal pus, which is presumably free from liquefying bacteria, to possess proteolytic power. Berestnew also examined

into the proteolytic action of the organs of the healthy rabbit and of the dog on gelatin and obtained positive results. They thus agree with the independent observations of the writer so far as they cover the same ground. He likewise finds 37° C. most favorable to the action of this ferment.

Fermi (5), who has used gelatin very extensively in the study of enzymes, has evidently failed to note the liquefying power of sterile tissues. He states that trypsin injected into guinea-pigs may be detected five minutes after injection, but not thirty minutes after. This phenomenon he interprets by assuming a rapid destruction of the trypsin in the organs.

From these few citations which I have been able to find it becomes evident that the enzyme action of tissues is still an undeveloped field. The problems which have suggested themselves to me have reference to the relative intensity of proteolysis of the various organs among different animals, during hunger and after feeding, during disease and in different degrees of immunity.* Furthermore, the question whether the leucocytes alone or some of the other cellular elements which make up the organs experimented with possess digestive powers is of undoubted importance in pathology.

Bibliography.

1. Davis, N. S., Jr. Cellular Digestion; its Utility in Pathological Processes. *Transactions of the International Medical Congress*, ninth session, iii, p. 389.
2. Leber, Th. *Die Entstehung der Entzündung und die Wirkung der entzündungserregenden Schädlichkeiten*. Leipsic, 1891. S. 508.
3. Grawitz, P. Beitrag zur Theorie der Eiterung. *Archiv f. pathol. Anatomie*, cxvi, 1889, S. 141.
4. Berestnew, N. Des propriétés fermentatives du sang et du pus. *Archives des sciences biologiques*, iii, 1894, p. 40.
5. Fermi und Pernossi. Ueber die Enzyme. *Zeitschrift für Hygiene*, xviii, 1894, S. 83.

SOME OBSERVATIONS REGARDING THE DISSEMINATION OF THE TYPHOID BACILLUS.†

By E. T. DUKE, M. D.,

SECRETARY OF THE BOARD OF HEALTH, CUMBERLAND, MD.

AN editorial in a recent issue of one of our medical journals furnishes the excuse for citing some practical observations on the spread of typhoid fever. The editorial referred to advocated the idea of writing and discussing the everyday subjects in medicine, rather than spending so much time and thought on unusual and extraordinary cases. The subject of typhoid fever is one that interests every physician, as cases are numerous and epidemics frequent in

* In these days, when the problem of immunity is being exploited from so many directions, it is legitimate to ask whether this peptonizing function is increased by immunization. The four rabbits which had passed through the hog-cholera fever successfully might be invoked to aid us in this difficulty. There seemed to be, on the whole, more activity in the organs of these rabbits, but the crudeness of the method and the many undetermined factors which might enter into the problem do not enable us to draw any conclusions.

† Read before the American Laryngological Association at its sixteenth annual congress.

various parts of the country. Prophylaxis being the highest aim of the true physician, anything that will throw light on the causation or spread of disease will awaken interest both in the profession and among the people.

That the typhoid bacillus is the cause of the fever has been until recently acknowledged by all authorities on the subject; as to how it is disseminated there seems to be some difference of opinion.

A London bacteriologist claims to have discovered other germs which he regards as the cause of the disease (*Lancet*). So far his claims have not been accepted. The tracing of the sources of infection in epidemics is frequently attended with considerable difficulty; in isolated cases it is often impossible. That the water and milk supplies are chief sources of danger in epidemics is conceded by nearly all observers, and yet some eminent men deny the importance attributed to these sources as carriers of the germs of the fever. There is in some portions of the country a fever differing in many respects from true typhoid, yet retaining enough of the symptoms to warrant its being called by that name. Some physicians call it typho-malarial, others regard it as true typhoid. It is on account of this fever that physicians are led to make the mistake of thinking the air the medium of infection and to attach little importance to water as the carrier of the typhoid bacillus. This so-called typho-malarial fever bears a very close resemblance to typhoid, but usually presents more of the malarial elements, less of the typhoid. In epidemics of typhoid fever, especially during seasons when the malarial poison is abundant in the air, there are always a great many cases of malarial fever so complicated with some of the symptoms of typhoid that a positive diagnosis is frequently impossible. In studying the subject in such localities it is extremely difficult to obtain accurate data, as physicians differ so regarding the fever; but in other sections where malarial fevers do not exist a better opportunity for study would be afforded. I have had an opportunity of seeing typhoid fever in mountainous regions where no malarial fever exists. In one neighborhood in a large mining community there were forty cases confined to the immediate locality and none in other portions of the town. These cases followed one which occurred in a house on a hill somewhat above the others. The dejecta were thrown into an outhouse above a well from which the people of the neighborhood obtained their water for drinking and cooking. In another village of the same county quite an epidemic of typhoid fever resulted from the use of water from a well in the yard of a large manufacturing establishment. So evident was it that this was the source of infection that only men and boys employed in these works were attacked, while near neighbors otherwise employed, getting their drinking water from another source, were not affected. The wives and children of the first-named class likewise escaped. A very large epidemic is traceable, I believe, to a single case. This patient's dejecta were thrown into a closet over a small stream which empties into a river, the water supply for a large town. The water became infected and a fearful epidemic followed, resulting in the loss of many lives.

Another case which came under my observation as health officer of this city was from the careless cleaning of an outhouse. There had been a case of the fever in the family to whom this closet belonged some months previous. In cleaning the outhouse a portion of its contents was spilled on the ground and permitted to remain for some time before the fact was made known to the authorities. It was a wet season, and in a short time a considerable portion was washed into the ground. The closet mentioned is on a hill, and below it are several wells from which the people of the neighborhood obtain their drinking water. Following this occurrence a number of cases of fever developed in this immediate locality, due undoubtedly to the cause mentioned.

From these cases can be readily seen the direct mode of spread of the bacillus which causes the disease. The malarial poison not being a factor, it was easy to trace the course of the typhoid germ and its entrance into the systems of those affected. A good lesson in preventive medicine may be learned from the epidemics which have been mentioned.

Had the dejecta of the first patient spoken of been disinfected and buried, all the other cases which followed could have been prevented. In the instance of the case which occurred in a large town causing such a severe epidemic, proper precautions would have prevented much suffering and loss of life. Three things are of the greatest importance to prevent the spread of the bacillus: Analysis of all water supplies, and if any are found contaminated they should be discontinued; boiling all water used for household purposes; and disinfecting and burying away from water courses the stools of patients affected with the disease. By these means much may be done to prevent the spread of typhoid fever.

REPORT OF A CASE OF AMÆBIC DYSENTERY, WITH SPONTANEOUS CURE.

By GEORGE J. PRESTON, M. D.,
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AND JOHN RUHRÄH, M. D.,
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E. C., colored, aged twenty-two years, single, occupation farm hand, was admitted to the Baltimore City Hospital on July 2, 1894.

His family history was negative and his previous history was fairly good. For some months past he has been working in the country just east of Baltimore on a truck farm.

About a month before his admission to the hospital he was taken with a diarrhœa which became worse and worse until he passed from five to ten liquid or partially formed stools, mixed with blood and mucus, daily.

Four days before admission he was seized with severe pain in his right side, accompanied by some shortness of breath and a slight cough, without expectoration. This followed exposure to cold and damp from lying on the ground after having become overheated. He did not remember how long after exposure the pain came on.

Physical Examination.—Fairly well nourished, chest long

and narrow. Tenderness over liver and as high up as the angle of the scapula behind and to the nipple in front. Dullness over this area, also loss of vocal fremitus and voice sounds. Over the liver and about the ninth rib, in the axillary line, there is a spot of especial tenderness about an inch in diameter. Urine normal; specific gravity, 1.025. Blood count: Red, 5,800,000; white, 5,600; hæmoglobin, sixty-eight per cent.

Clinical History. July 3d.—Examination of stools showed a number of very rapidly moving bodies, elliptical in shape, having a flagellum on one end by which they move. When at rest there is a sort of amœboid or "glowing" movement. The protoplasm is clear and not granular. They are nucleated. Efforts to stain them with methylene blue were not successful, and others could not be obtained for further experiments. They were about twenty micromillimetres long by ten broad.

Patient was put on *rr. ferri chloridi*, gtt. xx, t. i. d.

4th.—Stools show the amœbæ of amœbic or tropical dysentery. They are present in considerable numbers. The bodies described yesterday are not present to-day. In view of liver involvement hypodermic puncture was made over the tender spot over the liver. Blood in small quantity was withdrawn, but no pus. The nervousness of the patient prevented introducing it into the chest.

5th.—Hypodermic puncture of the chest just below the angle of the scapula. Nothing was found. The dullness has diminished a great deal. Cough persists. Morphine sulph., a quarter of a grain, at night for pain.

No treatment for the dysentery was instituted on account of waiting to obtain amœbæ for experimental purposes.

6th.—No amœbæ found.

7th.—Amœbæ found, but died before they could be used.

8th.—Amœbæ found and an alkaline straw infusion inoculated with them.

9th.—No amœbæ found in stools and no growth in cultures.

10th.—No amœbæ found. No growth in cultures. Patient is steadily improving. Chest is clear and cough has ceased.

28th.—Patient discharged to-day in very good condition. Has one or two stools daily. They are well formed and not attended with any pain or diarrhetic symptoms. No amœbæ have been found in the stools since July 8th.

August 20th.—Patient returned to report his condition. Is perfectly well and shows no signs of a relapse.

Ocular Ballottement.—The diagnosis of fluid vitreous with floating opacities may be aided by a little method that is not usually laid down in the text-books. The retinoscopic mirror is used in the same way as in indirect ophthalmoscopy. The patient has to be "trained" a little or carefully instructed in order to carry out the manipulation rightly, the essential point of which consists in halting a downward sweep of the eye suddenly and at such a point that the oculist can have a good view of the post-pupillary field. Direct the patient to look up to the ceiling and then to swiftly look at an object in front and on a line horizontal with the eyes, holding the gaze steadily there. If opacities floating in a fluid vitreous exist, this sudden "flip" of the vitreous chamber upward, followed by a sudden stoppage, flings the opacities upward, and with the ophthalmoscopic mirror they will be seen again to descend like snowflakes falling outside of a window in the night. This method of diagnosis might appropriately be named *ocular ballottement*.—*Medical News*.

Changes of Address.—Dr. Ellice M. Alger, to No. 139 East Twenty-eighth Street; Dr. Daniel P. Pease, to No. 9 West Twenty-fourth Street (Hoffman House); Dr. Louise G. Rabinovitch, to No. 118 McKibben Street, Brooklyn; Dr. A. F. Zahn (Brooklyn), to No. 115 Sumner Avenue.

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THE TREATMENT OF CRIMINALS ALLEGED TO BE INSANE.

UNDER the heading of A New Departure in Medical Jurisprudence, the *American Journal of Insanity* for October publishes an article by Dr. John B. Chapin, of Philadelphia, in which he says that every departure from established methods is likely to be scrutinized with a critical spirit, and before it can become a precedent must be shown to be a ready way to reach better results. It is true that members of the medical profession sometimes attach to expert testimony about the same value as the legal profession and the community do. Expert testimony must, however, continue to be regarded as indispensable, and anything that tends to increase the value of the physician's opinion should be welcomed by both professions. The present lack of confidence in expert testimony is due in great measure to the manner in which experts are expected to present their opinions.

Dr. Chapin relates the case of a man who had been indicted for a double homicide and been sentenced to death. No suggestion of insanity was made at the trial, or subsequently, until the time of the execution drew near, when the prisoner's conduct changed, and medical interest in the case dated from that time. An appellate court granted a stay of proceedings, also an application for an inquiry into his alleged insanity. The court verbally instructed a commission to interrogate and cross-examine any one of the witnesses who subsequently appeared and gave testimony. The commissioners frequently availed themselves of this privilege, partly to determine how far the experts who were called by the defense agreed upon what were recognized as results of experience derived from observation of the insane. After the hearing a report was presented in which the opinion and conclusion were expressed that the defendant was not insane. With this report a psychological chart prepared by Dr. Charles L. Dana, of New York, was submitted. The decision of the court was that the prisoner was not insane, and the court declined to interfere.

The chief interest in the case, says Dr. Chapin, lies in the action taken by the court in creating a commission, and in the question of whether such a proceeding may become a precedent to be followed in the interests of justice, and one more likely to secure independence of judgment by the medical expert than by following the usual course. A commission may err in its conclusions, he says, and the experts may also disagree. Doubts and differences are inevitable if two groups of experts testify, but the prisoner's rights must be guarded under all conditions. The only pretext for introducing experts for the defendant in such a case is that their views and testimony may

enlighten the court, together with a desire on the part of the court to give the defendant every opportunity to show his mental condition.

The foregoing proceeding, so far as the author has been able to learn, is without precedent, but whether this is the case or not—and we know it is not—he trusts that it may be one step in advance toward the adoption of some practical plan that will enable the expert to appear in court in such a manner that his independent judgment may be secured, for which service he should be paid a suitable compensation by an order of the court.

Dr. W. W. Godding, of Washington, commenting on Dr. Chapin's paper, remarks in the same journal that he is glad of the departure, and says he feels that the courts in the District of Columbia have taken a step in advance and established a precedent for humanity in every case where the question of the insanity of the convict is raised. No condemned man who is really insane, he says, needs to hang in the District of Columbia. When three able and impartial experts have passed upon his sanity, we have a right to say that the convict has had all the protection which is possible. Even if he should appear a little strange at the scaffold, it would be far more reasonable to attribute his conduct to his eccentricities than to suppose that the experts had made a mistake.

In the same journal Dr. E. N. Brush, of Towson, Md., relates in detail the case referred to by Dr. Chapin, and says that an anomalous feature of the order, which appears in Dr. Chapin's paper, is that portion which directs the commission to examine the prisoner, take the evidence of the guards and others, and then appear in court to hear the other witnesses and the experts called by the counsel for the prisoner, after which they are to file their opinion under oath. It is natural to suppose that a commission of this kind is composed of experts, and that was so in this case. Why, he asks, should experts be called by the counsel for the prisoner? If the two sets of medical men agreed, such a concurrence of opinion would be very desirable. If, on the contrary, they disagreed, and the commissioners refused to be moved by the opinions of the experts called by the prisoner, the judges would be in the position of receiving the opinions of three witnesses upon one side and the written opinion of the three medical commissioners on the other side.

The whole question of the best method to be followed, he says, in obtaining the opinions of those who, from experience, observation, or other reasons, are supposed to be able to aid in solving the problem, is a difficult one and presents many sides.

MINOR PARAGRAPHS.

A QUACK REMEDY FOR DROPSY.

The *Lyon médical* remarks upon the inventiveness of persons who play upon the credulity of the public, and cites the case of a certain German charlatan who vaunted a powder infallible in the cure of dropsy. This powder, which the quack pretended had cost him twenty years' research and which he sold for a hundred and forty francs a kilogramme, was nothing

whatever but the ash of Havana cigars. This was found to be the case both by chemical and by microscopical examination. Some persons affected with dropsy professed to have derived benefit from the use of the powder. However, says our contemporary, when it is borne in mind that the charlatan, whenever he sold a package, instructed the purchaser to drink freely of certain well-known diuretics, it is unnecessary to inquire further into the way in which the alleged effects of the remedy were produced.

ETHER AS AN INTOXICANT.

The *Lyon médical* states that the habit of getting drunk on ether, which originally came from England, has existed in France for the last five or six years. The number of persons addicted to this form of debauchery seems to be growing greater, and cases are not uncommon in which persons drunk with ether are arrested in the streets.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending November 6, 1894:

DISEASES.	Week ending Oct. 30.		Week ending Nov. 6.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	32	12	25	6
Scarlet fever.....	67	2	39	6
Cerebro-spinal meningitis....	0	0	0	0
Measles	12	1	28	4
Diphtheria.....	93	29	98	36
Small pox.....	16	0	1	2
Tuberculosis.....	181	108	75	75

The Southern Surgical and Gynæcological Association will hold its seventh annual meeting in Artillery Hall, Charleston, S. C., on November 13th, 14th, and 15th, under the presidency of Dr. Cornelius Kollock, of Cheraw, S. C. The programme includes the following papers: Memorial Address on Dr. Warren Stone, by Dr. A. B. Miles, of New Orleans; An Operation for Complete Perineal Laceration, by Dr. Joseph Price, of Philadelphia; Gonorrhœa in Women, by Dr. J. B. S. Holmes, of Atlanta, Ga.; Some Cases of Intestinal Obstruction, with Deductions Therefrom, by Dr. A. M. Cartledge, of Louisville, Ky.; Hernia of the Diaphragm, with Report of a Case, by Dr. Floyd W. McRae, of Atlanta, Ga.; The Treatment of Sinuses following Cœliotomy, by Dr. W. H. Wathen, of Louisville, Ky.; The Diagnosis and Treatment of Congenital Cystic Hygroma, by Dr. J. A. Goggans, of Alexander City, Ala.; Some Complicated Cases of Abdominal Surgery, by Dr. J. G. Earnest, of Atlanta, Ga.; An Early Operation in Appendicitis, with a Case, by Dr. J. McF. Gaston, of Atlanta, Ga.; Appendicitis, by Dr. W. B. Rogers, of Memphis; Attention to Women Before and After Labor, by Dr. W. G. Bogart, of Chattanooga, Tenn.; Plastic Operations for Carcinoma of the Breast, by Dr. J. T. Wilson, of Sherman, Texas; Gunshot Wound of the Spleen, Hæmostasis by Deep Suture, Recovery, by Dr. L. McLane Tiffany, of Baltimore; The Technique of Vesical Drainage, by Dr. G. Frank Lydston, of Chicago; The Successful Treatment of a Case of Nævus by Electricity, with Remarks, by Dr. William Perrin Nicolson, of Atlanta, Ga.; The Use of Electricity in Late Syphilis, by Dr. Lewis Wheat, of Richmond, Va.; Observations on the Action of Chloroform on the Functions of the Human Brain

and Spinal Cord as Witnessed in Extensive Injuries of the Cranium and Brain, by Dr. Bedford Brown, of Alexandria, Va.; The Treatment of Abscess of the Liver, by Dr. J. D. S. Davis, of Birmingham, Ala.; Puerperal Peritonitis, by Dr. V. O. Hardon, of Atlanta, Ga.; The Treatment of Peritonitis, by Dr. Richard Douglas, of Nashville, Tenn.; Movable Kidney, by Dr. George Benjamin Johnston, of Richmond, Va.; The History of Vaginal Extirpation of the Uterus, by Dr. George J. Engelmann, of St. Louis; The Present Status of Gall-bladder Surgery, by Dr. A. Vander Veer, of Albany; Gynecological Surgery away from the Large Cities and Educational Centers, by Dr. W. L. Robinson, of Danville, Va.; Reminiscences of Dr. J. Marion Sims in Paris, by Dr. Edmond Souchon, of New-Orleans; The President's Address, by Dr. C. Kollock, of Cheraw, S. C.; Transfusion in the Treatment of Acute Hemorrhage, by Dr. T. J. Crofford, of Memphis; A Case of Vaginal Hysterectomy for Carcinoma of the Uterus, Three Days after Parturition, by Dr. George H. Noble, of Atlanta, Ga.; The Simultaneous Appearance of Cancer in the Breast and Uterus, by Dr. James Evans, of Florence, S. C.; Something about the Final Condition of the Mouths in Gastro-enterostomies, with Specimens, by Dr. H. Tuholske, of St. Louis; A Puzzling Point in Labor, by Dr. George R. Dean, of Spartanburg, S. C.; Suprapubic Cystotomy compared with Perineal Operations, by Dr. C. H. Mastin, of Mobile, Ala.; Tracheotomy for Foreign Bodies in the Air-passages, by Dr. W. F. Westmoreland, of Atlanta, Ga.; Ligation in Continuity with Report of Cases (1. Ligation of the External and Internal Carotid Arteries and Internal Jugular Vein; 2. Ligation of the External Carotid Artery), by Dr. John A. Wyeth, of New York; The Placenta—When and how Delivered, by Dr. J. B. Murfree, of Murfreesboro, Tenn.; A Report of Cases of Varicocele Treated by the Open Method and Shortening of the Scrotum, by Dr. W. E. Parker, of New Orleans; The Treatment of Cystitis in Women, by Dr. Hunter McGuire, of Richmond, Va.; Hydropyonephrosis—Successful Removal of a Forty-Pound Tumor of the Kidney, by Dr. Joseph Taber Johnson, of Washington, D. C.; The Value of Plastic Work in Intraperitoneal Operations, by Dr. J. W. Long, of Richmond, Va.; Fibroid Tumor of the Uterus, with Suppurating Ovary Discharging per Rectum, by Dr. Rufus B. Hall, of Cincinnati; The Technique of Operations on the Pregnant Uterus, by Dr. W. D. Haggard, of Nashville, Tenn.; The Relation of Uterine and Ovarian Disease to Insanity, by Dr. L. S. McMurtry, of Louisville, Ky.; The Surgery of the Ureters, by Dr. Howard A. Kelly, of Baltimore; An Ideal Operation for Varicocele, by Dr. G. Frank Lydston, of Chicago; The Value of Coccygeal and Sacral Resection in the Treatment of Congenital Occlusion of the Rectum, by Dr. Rudolph Matas, of New Orleans; The Surgical Treatment of Spina Bifida, with an Illustrative Case, by Dr. H. O. Marcy, of Boston; Ligation of the Uterine Arteries in the Treatment of Chronic Metritis, by Dr. W. E. B. Davis, of Birmingham, Ala.

The Alvarenga Prize of the College of Physicians of Philadelphia.—The College of Physicians of Philadelphia announces that the next award of the Alvarenga prize, being the income for one year of the bequest of the late Señor Alvarenga, and amounting to about one hundred and eighty dollars, will be made on July 14, 1895, provided that an essay deemed by the committee of award to be worthy of the prize shall have been offered. Essays intended for competition may be upon any subject in medicine, but can not have been published, and must be received by the secretary of the college on or before May 1, 1895. Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope, having on its outside the motto of the paper and within it the name and address of the author. It is a con-

dition of competition that the successful essay or a copy of it shall remain in possession of the college; other essays will be returned upon application within three months after the award. The prize for 1894 has been awarded to Dr. G. E. de Schweinitz, of Philadelphia, for his essay entitled *Toxic Amblyopias*.

Diphtheria and the Serum Therapy.—Dr. Austin O'Malley, the writer of the article on Diphtheria and the Serum Therapy which was published in this journal on October 20th, wishes to call attention to a statement in his sketch of methods of producing immunity whereby the impression is left that the diphtheria bacillus itself is injected into the animal. It was not the intention of the writer to convey such an impression, as it is, of course, the toxine only, free from bacilli, that is used.

The New York Neurological Society.—At the last regular meeting, on Tuesday evening, the 6th inst., cases were presented and Dr. M. A. Starr exhibited photomicrographs of nerve cells (Golgi's stains). A paper entitled Note on a Case of Acute Poliomyelitis in a Hen was read by Dr. C. L. Dana, and one on Some of the Important Aspects of the Therapeutics of Diseases of the Nervous System by Dr. James J. Putnam, of Boston.

The Chicago Gynecological Society.—At the sixteenth annual meeting, held on October 19th, the following officers were elected to serve for the ensuing year: Dr. Franklin H. Martin, president; Dr. A. J. Foster and Dr. J. C. Hoag, vice-presidents; Dr. H. P. Newman, secretary; and Dr. T. J. Watkins, editor. The retiring president, Dr. Fernand Henrotin, delivered an interesting annual address, after which the society adjourned to the annual banquet. Dr. John B. Hamilton, Dr. J. B. Murphy, Health Commissioner Arthur Reynolds, Mr. Alexander H. Ferguson, and others were guests of the society.

The Death of Dr. William Goodell, of Philadelphia, which took place on the 27th of last month, deprived the medical profession of one of its most accomplished and lovable members. Dr. Goodell was sixty-four years old at the time of his death.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from October 28 to November 3, 1894:*

FISHER, WALTER W. R., Captain and Assistant Surgeon, will be relieved from duty at Fort Columbus, New York Harbor, upon the expiration of his present leave of absence, and will report for duty at Fort Meade, South Dakota, to relieve STRONG, NORTON, Captain and Assistant Surgeon. Captain Strong, on being relieved by Captain Fisher, is ordered to Fort Sheridan, Illinois, for duty at that post, relieving NEWGARDEN, GEORGE J., First Lieutenant and Assistant Surgeon. Lieutenant Newgarden, on being relieved by Captain Strong, is ordered to Fort Wayne, Michigan, for duty.

So much of the special order as directs RAFFERTY, OGDEN, Captain and Assistant Surgeon, to report to the commanding officer Presidio of San Francisco, Cal., for duty, is revoked.

EWEN, CLARENCE, Major and Surgeon, is granted leave of absence for six months on surgeon's certificate of disability.

So much of the order as assigns GARDNER, WILLIAM H., Major and Surgeon, to Fort Custer, Montana, is revoked.

So much of the order directing BRADLEY, ALFRED E., Captain and Assistant Surgeon, to report for duty at Fort Keogh, Montana, is amended as to direct him, upon the abandonment of Fort Sully, South Dakota, to report for duty at Fort Custer, Montana.

LAUDERDALE, JOHN V., Major and Surgeon, is granted leave of absence for four months, to take effect upon the final abandonment of Fort Ontario, New York.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending November 3, 1894:*

DUNBAR, A. W., Assistant Surgeon. Ordered to the Naval Laboratory and Department of Instruction.

FARENHOLT, ARMEN, Assistant Surgeon. Detached from the Naval Laboratory and Department of Instruction and ordered to the U. S. Receiving-ship Vermont.

STONE, L. W., Assistant Surgeon. Detached from the U. S. Receiving-ship Vermont and placed on waiting orders.

HOPE, J. S., Assistant Surgeon. Detached from the Naval Hospital, Mare Island, California, and ordered home.

DICKINSON, DWIGHT, Surgeon. Detached from the U. S. Steamer Miantonomoh and ordered to the U. S. Steamer Richmond.

Marine-Hospital Service.—*Official List of the Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the Six Weeks ending November 3, 1894:*

BAILHACHE, P. H., Surgeon. To report at Bureau for special temporary duty. October 25, 1894.

PURVIANCE, GEORGE, Surgeon. Granted leave of absence for five days each. October 2, 1894, and October 29, 1894.

HUTTON, W. H. H., Surgeon. To proceed to Gulf Quarantine Station for temporary duty. October 24, 1894.

SAWTELLE, H. W., Surgeon. When relieved from duty at Boston, Mass., to proceed to New Orleans, La., for duty. October 26, 1894.

GASSAWAY, J. M., Surgeon. When relieved from duty at New Orleans, La., to proceed to Cairo, Ill. October 27, 1894.

IRWIN, FAIRFAX, Surgeon. To report at Bureau. October 19, 1894.

MEAD, F. W., Surgeon. To proceed to New York, N. Y., for temporary duty. September 24, 1894.

BANKS, C. E., Passed Assistant Surgeon. To proceed to Bath, Me., as inspector. October 20, 1894. Granted leave of absence for three days. November 3, 1894.

PECKHAM, C. T., Passed Assistant Surgeon. Granted leave of absence for twenty-two days. October 16, 1894.

GLENNAN, A. H., Passed Assistant Surgeon. Granted leave of absence for two days. September 29, 1894. Granted leave of absence for three days. October 21, 1894.

BROOKS, S. D., Passed Assistant Surgeon. To proceed to Saginaw, Mich., as inspector. October 26, 1894.

McINTOSH, W. P., Passed Assistant Surgeon. Granted leave of absence. October 9, 1894.

GEDDINGS, H. D., Passed Assistant Surgeon. Detailed for special duty to assist the health authorities, District of Columbia. October 27, 1894.

GARDNER, C. H., Assistant Surgeon. To proceed to Angel Island Quarantine Station for temporary duty. October 13, 1894.

NYDEGGER, J. A., Assistant Surgeon. Granted leave of absence for eighteen days. September 24, 1894. Leave of absence extended three days. October 17, 1894.

STEWART, W. J. S., Assistant Surgeon. To proceed to Alexandria, Va., as Inspector. October 10, 1894. To proceed to Glymont, Md., for special duty. October 29, 1894.

STRAYER, EDGAR, Assistant Surgeon. Granted leave of absence for fourteen days. October 24, 1894.

BLUE, RUPERT, Assistant Surgeon. Granted leave of absence for three days. November 3, 1894.

NORMAN, SEATON, Assistant Surgeon. To proceed to New York, N. Y., for temporary duty. October 25, 1894. To rejoin station at Baltimore, Md. November 2, 1894.

SPRAGUE, E. K., Assistant Surgeon. Granted leave of absence for thirty days. October 10, 1894. When relieved from duty at Cairo, Ill., to proceed to Mobile, Ala., for duty. October 29, 1894.

THOMAS, A. R., Assistant Surgeon. To proceed to Cairo, Ill., for temporary duty. October 5, 1894.

GREENE, J. B., Assistant Surgeon. To proceed to New York, N. Y., for duty. October 27, 1894.

Appointment.

JOSEPH B. GREENE, of Alabama, commissioned by the President as an assistant surgeon. October 24, 1894.

Society Meetings for the Coming Week:

MONDAY, *November 12th*: New York Academy of Medicine (Section in General Surgery); New York Ophthalmological Society (private); New York Medico-historical Society (private); New York Academy of Sciences (Section in Chemistry and Technology); Lenox Medical and Surgical Society (private); Boston Society for Medical Improvement; Gynæcological Society of Boston; Burlington, Vt., Medical and Surgical Club (annual); Norwalk, Conn., Medical Society (private); Baltimore Medical Association.

TUESDAY, *November 13th*: Southern Surgical and Gynæcological Association (first day—Charleston, S. C.); New York Academy of Medicine (Section in Genito-urinary Surgery); New York Medical Union (private); Kings County, N. Y., Medical Association; Medical Society of the County of Rensselaer, N. Y.; Newark, N. J., and Trenton, N. J. (private), Medical Associations; Clinical Society of the Elizabeth, N. J., General Hospital and Dispensary; Northwestern Medical Society of Philadelphia; Baltimore Gynæcological and Obstetrical Society; Practitioners' Club, Richmond, Ky.; Camden, N. J., County Medical Society (semi-annual—Camden); Norfolk, Mass., District Medical Society (Hyde Park).

WEDNESDAY, *November 14th*: Southern Surgical and Gynæcological Association (second day); New York Surgical Society; New York Pathological Society; Metropolitan Medical Society (private); American Microscopical Society of the City of New York; Medical Society of the County of Albany, N. Y.; Pittsfield, Mass., Medical Association (private); Worcester, Mass., District Medical Society (Worcester); Philadelphia County Medical Society.

THURSDAY, *November 15th*: Southern Surgical and Gynæcological Association (third day); New York Academy of Medicine; Brooklyn Surgical Society; New Bedford, Mass., Society for Medical Improvement (private).

FRIDAY, *November 16th*: New York Academy of Medicine (Section in Orthopædic Surgery); Baltimore Clinical Society; Chicago Gynæcological Society.

SATURDAY, *November 17th*: Clinical Society of the New York Post-graduate Medical School and Hospital.

Letters to the Editor.

UNUSUAL EFFECTS OF APOMORPHINE.

16 EAST THIRTIETH STREET, October 30, 1894.

To the Editor of the New York Medical Journal:

SIR: Recently, in using apomorphine to produce emesis, the effect was so unusual that I was inclined to think either that it was accidental or that there was a peculiar idiosyncrasy on the

part of my patient. Relating the particulars of the case to Dr. G. H. Cobb, I found he had had a very similar experience. Realizing that if such effects were not exceptional its use in certain forms of dyspepsia might be useful, I am prompted to report my case.

I was called for the first time to see Miss —, suffering with indigestion and violent gastralgia. For some years she had been liable to such attacks, and had been compelled to limit herself to a very few articles of food. On her telling me that she obtained relief only by emesis, I gave hypodermically a tenth of a grain of apomorphine, Fraser's tablet. The effect—to quote her words as told me the next day—was, “within two minutes after you gave me the injection I was entirely free from pain. I fell asleep and slept for nearly an hour, and have been perfectly comfortable ever since.” Dr. Cobb's case was identical in the immediate relief from pain, followed by sleep. His patient, a physician, took four tablets of a tenth of a grain each. So far as I know, apomorphine is only used as an emetic, but if it should prove to have effects similar to those above described, I feel it would be a valuable addition in the treatment of such cases.

STUYVESANT F. MORRIS, M. D.

UNDERSIZED BABIES.

KNOXVILLE, TENN., October 20, 1894.

To the Editor of the New York Medical Journal:

SIR: My attention has been recently called to several instances where children of remarkably small size have been born—one in Georgia, of a pound and three quarters; one in Delaware, Ohio, of a pound and a half; and one in New York city that was almost as small.

I wish to report an occurrence in my practice. On the 28th of last March I was called to attend a lady in confinement. Upon my arrival I found the patient well advanced in labor, and in a short time she gave birth to a child that at first I thought was premature, but on close examination I found the child perfectly developed. It was so small that we made no attempt to dress it, but wrapped it in antiseptic cotton, then in flannels. When five days old the baby weighed twenty-four ounces. It nursed well, but on the tenth day it was attacked with jaundice. This being remedied, it thrived well. It weighed four pounds in four months. At the beginning of the fifth month it contracted croupous pneumonia of the left lung, then in a few days pneumonia of the right lung. Its sickness lasted three weeks. After a little time the baby began to grow again, and at the end of nearly seven months the baby weighs six pounds and is perfectly well. I have seen other small children, and have never found it necessary to resort to steam heat. Keep the temperature of the room at 65° or 70° F., and the baby well wrapped in cotton and flannels, with the mother to nourish it.

L. W. DAVIS, M. D.

A CHIROPODIST ON INGROWING TOE-NAILS.

125 STATE STREET, CHICAGO, October 8, 1894.

To the Editor of the New York Medical Journal:

SIR: Referring to the article about Ingrowing Nails, in No. 825 of the *New York Medical Journal* (September 22, 1894, page 384), I would add the following remarks based on my experience as a chiropodist. My observations have proved to me that ingrowing nails are indeed constitutional and in their original cause constitutional and inherited only; that misshapen shoes are but rarely the cause, and are therefore secondary; that they, however, add to the inflammation and increase pain and fever.

An original cause is frequently found in only a small cut-

ting of the skin, accidental, perhaps, but producing traumatism. The nail may then grow in, but would if properly treated resume its natural propensities. In the same manner insufficient washing and cleansing of the toes, thereby allowing the dirt and perspiration to accumulate, may cause the nails to grow in.

CASE I.—About a year ago Mr. W., a resident of Chicago, about thirty-five years of age, consulted me. He stated that he had suffered from ingrowing nails for years, that the most regular care did not prevent the nails from growing in. He further stated that his mother, now fifty-six years old, had been troubled in the same way, and that his little daughter of four years was also afflicted. His nails were grown in quite deeply, and suppuration had set in, so that under and around the nail I found a large quantity of pus. I pared a narrow diagonal piece of the nail out on each side, cleansed the nails thoroughly, and put vaseline freely into the dents under the flesh. Then I inserted cotton under the edges of the remaining part of the nail. On the next day I removed this cotton, again cleansed the parts, and applied bicarbonate of sodium and a few drops of Monsel's solution. After this had taken effect I again saw the man, cleansed the parts again, and applied a dressing of vaseline and carbonated cotton, and he has not been troubled with ingrowing nails since.

CASE II.—A mother brought a three-year-old child who was unable to walk in shoes, and on investigating I found the nails on the large toes of both feet were badly grown in, but caused pain only when the child wore shoes, even if these were of more than adequate size. These caused the child to walk on the outer toes of his feet as much as possible, with his feet turned in, but after I had treated them in the same way as in Case I, the boy was relieved, and has not been troubled since. He is now five years old.

I. J. REIS,

Surgeon-Chiropodist.

Proceedings of Societies.

THE NEW YORK NEUROLOGICAL SOCIETY.

Meeting of October 2, 1894.

The President, Dr. EDWARD D. FISHER, in the Chair.

Cortical Localization of Cutaneous Sensations.—Dr. C. L. DANA read a paper with this title. He first referred to a previous article by himself on this subject, entitled *The Cortical Representation of the Cutaneous Sensations* (*Jour. of Nervous and Mental Dis.*, October, 1888), in which he had stated that the clinical and pathological evidence so far collected had shown that the motor areas of the cortex contained also the representation of cutaneous sensations, and that the sensory centers for the different parts of the body appeared to be larger and more diffuse than the motor. The speaker said that the accumulated evidence since that time (1888) had entirely confirmed the position which he had taken, and he did not know of any one who now seriously contended that the motor areas had not also some sensory function. While the sensory function of the so called motor cortex was acknowledged, the exact nature of this sensory function remained yet to be determined. He said that since his first article on this subject was written a considerable amount of evidence had accumulated. The facts thus collected might be grouped in three classes: (1) the experimental; (2) the clinical and pathological; (3) the purely pathological. The experimental evidence had been collected in a very complete and

thorough article by Dr. F. W. Mott (*Brit. Med. Jour.*, September, 1893). He also referred to an article on this subject by Dr. Hale White (*Lancet*, September, 1893); by Professor Schaefer, and by Victor Horsley (*Nineteenth Century*, June, 1891).

The clinical and pathological evidence presented by the speaker consisted of a number of cases collected from literature and three cases of his own. The first of these latter cases was that of a man, aged forty-six years, who had had syphilis ten years before. There had afterward been headache, convulsions of the left side of the body, followed by general convulsions, and coma. Recovery from the convulsions had been followed by complete left hemiplegia and hemianæsthesia and death. The autopsy had shown a syphilitic gumma of the dura mater pressing into and involving the central convolutions. The gumma had been located about the middle portion of the fissure of Rolando, and had been about an inch and a half in diameter.

The second case was that of a man, aged fifty-five years, with a history of syphilis. Gradually right hemiplegia had come on, the paralysis being considerable in extent and associated with some loss of tactile and pain sensibility on the right side, and death had resulted. A tumor of the size of a hen's egg was found in the middle of the left ascending frontal convolution.

The third case was one of Jacksonian epilepsy, with paralysis of the left arm, sensory troubles, headache, and optic neuritis. An operation had been followed by improvement of the symptoms. Among other reports of cases cited by Dr. Dana were the following: By Dr. D. A. K. Steele, *Jour. of the Amer. Medical Association*, January, 1894; by Dr. Frank S. Madden, *Jour. of Nerv. and Men. Dis.*, February, 1893; by Dr. Haycock, *Australian Med. Jour.*, July, 1893; by Dr. P. C. Knapp, *Intracranial Growths*, p. 61; by Dr. L. Darkschewitz, *Neurol. Otrbl.*, vol. ix, 1890; and by Dr. M. Allen Starr, *Brain Surgery*, Cases 5 and 18.

In all the cases quoted by Dr. Dana there had been some sensory disturbances; an analysis of them showed that the motor cortex had some sensory function, and that this was true of both anterior and posterior central convolutions. The localizing sense was the one oftenest affected, so that the patient could not determine the position of a point touched. This was generally indicated by the term tactile anæsthesia. With almost equal frequency the sense by which the fingers were guided over objects, so that their nature and their mode of use were appreciated, was lost. This was due to a loss of the localizing and muscular sense. "Fumbling" was the clinical characteristic of cortical anæsthesia. Less often the sense of simple contact or pressure was abolished. Next in frequency we found a loss of painful and thermal sensations. There seemed to be no doubt that some analgesia could be caused by destruction of the motor cortex, and some hyperalgesia by its irritation.

Naturally, before a set of motor nerve cells was discharged in a voluntary movement, this discharge must be co-ordinated and set off in a definite manner. The skin-muscular sensations stored up as memories controlled these voluntary and automatic movements, just as the word-memories controlled the organs of articulation. In cortical lesions there was, then, a skin and muscular "aphasia," and a case of cortical lesion was practically a case of aphasia, so far as purposeful movements in the affected part were concerned. The other and concomitant symptoms of analgesia and thermo-anæsthesia could be equally understood on this hypothesis. Painful and thermal stimuli helped in teaching the motor cortex to discharge correctly and purposefully. Pain and thermic memories would naturally cluster around memories of contact and motion, yet they were less specialized, less important, and less effective; they were, in a word, not so well represented, and larger regions were re-

quired to affect them. The greater sensitiveness and co-ordinative power of the right side was in harmony with the fact that the special sense memories were better represented in the left cerebrum.

The author stated that it did not follow from what he had said that he subscribed to the doctrine of Bastian and others who believed that the central convolutions were sensory centers. These were essentially motor. To say that the motor cortex was sensory-motor was not enough, for it did not imply the fact that the cortex represented sensations and also memories of sensations. It was in fact a sensory-memory-motor organ. It was not probable that muscular sensations and memories were diffused over the motor cortex as perfectly as the tactile were. All clinical and anatomical evidence showed that the post parietal region, especially the inferior parietal, was the center for muscular memories, and that when it was diseased, most striking disorders of muscular sense occurred. Hence it might be that the simple muscular sensations were represented chiefly here, and that the memory centers for movements were co-extensive with the motor cells, just as there was a center for visual sensations in the cuneus, and for certain visual memories in the angular gyrus.

Dr. E. C. SEGUIN said the character of Dr. Dana's paper was such that it could hardly be discussed in an offhand way. One point that had occurred to him during the reading of the paper was that our methods of studying the sensibility of the skin and muscles in cases of cerebral paralysis were far from systematic or perfect. More particularly was this true with reference to the detection of slight alterations of the cutaneous tactile sense. We attached too much importance to the distance at which the patient could distinguish one point from another, and we were apt to neglect the more delicate contact tests for tactile sensations, which were so often impaired in cases of cerebral paralysis. The imperfections of our methods in this respect, Dr. Seguin said, would lead him to agree with the author of the paper that in many of the cerebral cases in which anæsthesia was reported absent, its presence was really overlooked.

Many observers confounded the various modes of tactile sensibility and the muscular sense, strictly speaking, and on this account some cases had been incorrectly observed, by inferring from certain tests which really applied to the tactile sensibility of the skin that the consciousness of the muscular movements, of their force and direction, was lost.

With reference to the theoretical part of the question brought up in the paper, Dr. Seguin said he felt very much disinclined to return to the old theory ascribing a sensory-motor function to the motor cortex. There was no anatomical evidence that common sensory fibers proceeding from the periphery to the centers had their termination in any cells or groups of cells. The cells of the sensory apparatus were at the periphery, and as the fibers proceeded centripetally they subdivided into filaments of infinite smallness, which ramified and were lost between the cells, and might possibly have a connection with the unformed nervous substance. With such a conception of the structure of the central sensitive fibers we need not be surprised if the function of common or tactile sensibility was found in ill-defined and extensive areas, most probably larger than the so-called motor zone. The "muscular sense" stood apart, and we had some reason to believe that we knew its cortical "center," but it was clearly outside the motor zone.

Dr. M. ALLEN STARR stated that a number of cases in addition to the two mentioned by Dr. Dana had come under his observation, which had confirmed him in the theory that sensory disturbances were frequently met with in connection with lesions of the central convolutions. He was not, however, pre-

pared to accept the view that the sensory and motor centers were coincident. The following case, showing that the muscular sense might be lost from a cortical lesion, without paralysis, had recently come under his observation. The patient was a young man who had entered the Presbyterian Hospital last February. Four years previously he had received a severe blow on the head, followed by very intense headache at the point where the blow had been received. This had been on the left side of the head, about an inch and a half from the median line, and two inches and a half posterior to the fissure of Rolando. In addition to the headache he was subject to attacks epileptic in character—not cortical epilepsy, the man having had no convulsions, but psychical epilepsy. He had acute maniacal attacks, lasting about fifteen minutes; after such an attack he would fall asleep and, on awakening, have no memory of what had occurred after the onset of the attack. These attacks had become more frequent, incapacitating him for his work and making his life a burden to himself and his friends. He had no paralysis; no anæsthesia of any kind, tactile, temperature, pain, or muscular. It was decided to operate for this condition. An opening two inches in diameter was made in the skull by Dr. McCosh, an inch and a half to the left of the median line and two inches and a half posterior to the fissure of Rolando, and an angiomaticous mass, consisting of a collection of veins, about three quarters of an inch in diameter, was discovered. The larger vessels leading into this were tied off and the mass was removed. As soon as the patient came out from the ether, the house physician noticed a peculiar awkwardness of the fingers and hand on the right side. On examination, it was found that as a result of the operation a most complete ataxia of the right hand up as far as the elbow had supervened. He was unable to feed himself or carry a glass to his lips. The motions made with that hand were irregular and extremely ataxic. There was no disturbance of the tactile, pain, or temperature sense. There was no disturbance of the power of movement, but when his eyes were blindfolded he was unable to reproduce with his right hand the position given to the left, and *vice versa*. This ataxic condition had been much improved at the end of six weeks and had entirely disappeared after three months. This case, the speaker said, illustrated the localization of the muscular sense in the parietal lobe, and showed it to be entirely distinct from the tactile, temperature, and pain senses, and from the motor power. He agreed with Dr. Seguin that we must remodel our ideas regarding the physiology of the sensory process. We must accept the idea that sensory impressions coming in from the skin passed upward through the spinal cord, the medulla oblongata, and the posterior part of the internal capsule, being distributed by means of collateral fibers to all the various parts of the gray matter, and that they probably had their terminal radiations in the posterior central convolution, not in cells, but in a fine terminal network. This in turn interlaced with the motor region.

In conclusion, the speaker said that he was inclined to maintain the position that the posterior central convolution and the parts behind it were more concerned in sensation than the anterior parts, which were more concerned in motion. While there was no doubt a very close association between the two, yet the parts of the cortex must be considered separate.

Dr. LANDON CARTER GRAY said that it seemed to him that we had thus far failed to discover the cortical centers for the tactile, muscular, painful, and thermic sensations. As we all knew, these senses might be absolutely lost in certain lesions of the cord, the medulla, and the region of the basal ganglia. All the basilar portion of the brain was inaccessible to experimentation and observation, and in that region, perhaps, these centers might be located. In a few cases coming under his observation,

in which the lesion had been found in the motor area of the brain, he thought he had been able to detect some impairment of the tactile sensibility (rendered somewhat dubious by the habits of the patient), and in one case, in which the lesion had been in the vicinity of the ascending parietal convolution, there had been marked impairment of the muscular sense. The speaker said that he was fully in accord with the statement made by one of the speakers that our present methods of detecting a loss of tactile or muscular sensibility were not sufficiently exact; the æsthesiometer certainly did not answer the purpose.

The PRESIDENT said that he agreed with Dr. Seguin that the examination of patients with cerebral lesions was frequently too cursory, and that in many cases a careful examination would no doubt disclose some disturbance of muscular or tactile sensibility. The method of ascertaining the cutaneous sensibility by means of two pin points he had long ago abandoned, as it was very unreliable and the results would differ even in a healthy person. It was certain, as Dr. Dana had stated in his paper, that in some cases of cerebral lesions no disturbances of sensibility were present—at least to any marked degree. In a case recently under his observation, in which the lesion had been essentially confined to the cortex, the patient had had epileptic seizures limited to one side of the body, and there had been at no time any tactile or muscular disturbance or any motor weakness.

Dr. DANA said that he did not agree with Dr. Gray that thus far no progress had been made toward the localization of cutaneous sensations. Many cases were on record in which a certain portion of the cortex had been excised, and as a result there had been paralysis and anæsthesia in the region controlled by that cortical area. In his paper he had only attempted to show that the cutaneous and muscular sensibilities had a representation of some kind in the areas of the brain that were known as motorial. Whether there was a definite special sensory center in this region he did not pretend to say. We did know that all the clinical and pathological evidence at our command pointed to this part of the brain and no other as the seat of these cutaneous disturbances.

The Charcot Memorial.—Dr. STARR stated that an effort was being made in France to raise a fund for the erection of a statue of Charcot as a memorial of his scientific work. This movement had been taken up with interest by Charcot's pupils in Germany, Italy, and other parts of the continent, and committees had been appointed to solicit subscriptions and forward them to the treasurer of the fund in Paris. He said that, as there were probably many gentlemen in this country who were indebted to Professor Charcot and who were attached to his memory by their personal acquaintance with the man, it seemed to him appropriate that the New York Neurological Society should participate in this movement, and appoint a committee to solicit contributions to this fund. He made a motion to this effect, which was unanimously carried.

AMERICAN LARYNGOLOGICAL ASSOCIATION.

Sixteenth Annual Congress, held in Washington, D. C., on Wednesday, Thursday, and Friday, May 30 and 31 and June 1, 1894.

The President, Dr. D. BRYSON DELAVAN, of New York, in the Chair.

Papillary Hypertrophy of the Nasal Mucous Membrane compared with Papillary Fibroma or Papilloma.—A paper on this subject was read by Dr. JONATHAN WRIGHT, of Brooklyn. (See page 453.)

Dr. H. L. SWAIN, of New Haven, said that one would certainly be rather bold to attempt to add anything to the statements made by Dr. Wright. Years ago he had had two cases of papilloma which had presented similar gross appearances. They had differed, however, microscopically. One had been from the larynx and the other from the ear. The latter had corresponded with some of Dr. Wright's drawings from the nose. He thought Dr. Wright's classification of tumors in the nose was very apropos.

Report of a Case of Epithelioma and of One of Sarcoma of the Larynx.—Dr. ARTHUR AMES BLISS, of Philadelphia, read a paper with this title. (See page 582.)

Dr. DE ROALDES said he would in such cases advise the use of bromide of ethyl preliminary to using chloroform. It was less irritating to the air-passages and almost suppressed the period of excitement and thereby reduced to a minimum the danger of spasm of the glottis. In less than a minute the patient was relaxed, and the anæsthesia was then kept up with chloroform.

The PRESIDENT was glad that Dr. Roaldes had called attention to the use of bromide of ethyl. The anæsthetic had been introduced into New York city in 1879 and given a fair trial at one of the largest hospitals. It had been pronounced unsatisfactory and had been abandoned. It was to be hoped that of late years it had become possible to manufacture a better article. This indeed seemed to be the case, as those who had lately employed it had been favorably impressed.

Exudative Pharyngitis.—Dr. W. C. GLASGOW, of St. Louis, read a paper on this subject. (See page 532.)

Dr. JONATHAN WRIGHT, of Brooklyn, said he was very much interested in this question of "streptococcus throat," as Dr. Glasgow had called it. He doubted very much if there were any significance in the finding of streptococci in this lesion, because they had been found in perfectly normal throats, and they were found in diphtheria. It seemed to him that the surgeon should consider other factors than this as the cause of the lesion. It was a remarkable fact that while such cases had been reported in Philadelphia, St. Louis, and Baltimore, there had not been one as yet in New York, notwithstanding its wealth of clinical material.

Dr. GLASGOW asked to be allowed to cite an instance bearing on the remarks just made by Dr. Wright. A few years ago a singer had come to him in St. Louis. He had lost all power over his voice about ten days previous to his visit. It was learned that he had come from Brooklyn. His true cords were found to be extremely swollen and œdematous. After being under treatment for ten days he was able to sing as well as ever. He had lost his voice in Brooklyn. The speaker said he had seen these cases from all parts of the country—New York and Boston, as well as the western slope.

A Case of Sarcoma of the Tonsil.—Dr. A. W. WATSON, of Philadelphia, reported a case of this disease. (See page 584.)

Importance of an Early Diagnosis of Malignant Tumors of the Throat.—Dr. J. W. GLEITSMANN, of New York, read a paper on this subject. (See page 584.)

The PRESIDENT said that Dr. Coley, of the New York Cancer Hospital, had lately written upon this important subject, and had reported twenty per cent. of successful cases. It was of great interest to us to know just what the value of this method really was. Thus far the injections had proved sufficiently successful to warrant some hope of future advance in this direction.

Dr. JONATHAN WRIGHT said that the paper was very valuable indeed, for no doubt every member of this society had had more or less frequent occasion to answer for himself the ques-

tion of operation for malignant growth. The most important element was in the diagnosis. In nearly every case of tuberculosis or cancer the great cry was, "We did not see the case early enough!" In the early stage of epithelioma it was often extremely difficult to make a diagnosis. It was in many cases necessary to wait until the microscope decided whether it was a benign or a malignant growth. The same was true of sarcoma. But in many cases there was no way of making a diagnosis until the clinical history had made it evident. There certainly were some cases of sarcoma and carcinoma reported as cured where there was a mistake in diagnosis. It must have occurred to those who had been fortunate enough to discover their error in diagnosis before operating that there must be a great many cases operated upon and reported as cured in which there was really no malignant disease.

Regarding the injections of streptococci or of their toxins the speaker said that there were many cases reported in which the patients had received injections and no reactionary results at all had been obtained. In some cases it was justifiable to use almost anything. It was the height of cruelty to tell a patient you could do nothing for him. Something should be done, even if the patient were to die on the operating table.

Dr. H. L. SWAIN, of New Haven, said that the last speaker had mentioned a good many things which he had intended to say regarding the difficulty of making an early diagnosis. It was all very well to say that all cases should be seen early. He recalled a case which he had just reported where the patient had originally suffered from benign tumor of the larynx. Examination revealed one year later an ulcerative condition of the larynx and a swelling of the parts where the benign tumor of the vocal cord had been. The patient had also developed a cough. The patient was kept under observation for three months. The malignant growth developed rapidly, and only by obtaining a piece of it with great difficulty at the end of this time and examining it in sections an absolute diagnosis was reached. Three months had thus elapsed. In the removal of the growth the larynx was removed, and the operation conducted as described in his paper of yesterday. He had had some experience with operations upon the larynx, and if he ever had occasion to do the radical operation for cancer again he would do it in this same way. He had lately seen three such operations. One died of septic pneumonia. In the other two cases thyrectomy was performed, and every portion of the growth, which was circumscribed, was removed thoroughly. The growth returned in less than six months. To remove the whole growth in the case related it became necessary to do laryngectomy. This patient was now very well and would soon be able to talk distinctly. By this method of operating the danger from septic pneumonia was reduced to an absolute minimum. Four operations by an older method were on record by Bardeleben in which all four of the patients were lost; of the next five, by a method similar to the one mentioned, four lived.

The question of removal of tumors from the fauces reminded him of a recent hospital patient in which there was an extensive carcinoma. The patient strongly urged one to operate, and one did so somewhat against one's judgment, and was able to get around every part of the growth and get it out completely. It embraced the surface below the tonsil on one side and both pillars of the fauces. It was scraped and cauterized by the Paquelin cautery. Ligation of the external carotid assisted greatly in preventing hæmorrhage. It was now six weeks since the operation, and there was no serious recurrence. He would add that the anæsthetic was administered through the trachea by a cannula, but the operation could have been done

without this arrangement. The same patient had been subsequently etherized for the removal of a nodule which escaped the first operation, and this time, although the ether was administered through the nose, there was no trouble with the larynx. He would like to ask Dr. Watson if he thought his patient suffered much during his operation.

Dr. WATSON replied that the patient was a rather courageous woman, and had not complained of any pain until the operation had been nearly completed. In doing the operation he had started above and behind the tonsil and had passed down between that and the posterior pillar, and had come down through the anterior pillar. The removal had been accomplished by successive strokes of the knife. Cocaine was applied to the surface, not hypodermically.

Dr. W. K. SIMPSON, of New York city, asked how much cocaine was necessary in the operation, what was the strength of the solution, and whether the patient presented any symptoms of cocaine poisoning.

Dr. WATSON said in reply to Dr. Simpson's questions that he had used a ten-per-cent. solution of cocaine, and that there had been no symptoms of cocaine poisoning.

Dr. CASSELBEERY, of Chicago, said that he had had an unfortunate experience in a case similar to Dr. Watson's, only that it was more advanced. The patient was a young man, seventeen years of age. He had done the operation in the same way, using injections of cocaine. The operation revealed a sarcoma which was not confined to the tonsil, but involved other parts of the pharynx, including the pillars of the fauces, and the infiltration extended to the tissues of the neck. The growth could be but partially removed, and recurrence was rapid. An external operation was rejected by the patient's friends, and the case terminated fatally.

Concerning intralaryngeal operations for sarcoma of the larynx, he had seen recurrence in two cases, and he believed the method was not sufficiently radical and was prone to delay too long the more radical external operations by holding out what would prove to be a false hope to the patient.

Dr. SWAIN said, regarding the possibility of operating through the neck, that the operation mentioned was an external one. When the second nodule was removed they did not go through the neck again and had got along very well. He did not favor the external operation in such cases if it could be avoided.

Dr. GLEITSMANN said that he would confine himself to answer the remarks made in regard to endolaryngeal treatment and diagnosis.

He was still of the opinion that endolaryngeal treatment of a malignant growth was rational, but that it could be carried out only in isolated, selected cases, as had been said in the paper. He had a patient under observation who complained of hoarseness, and presented at inspection a small nodule at the edge of one vocal cord. The surrounding hyperæmia, a slight sluggishness in the movement of the cord, made him suspicious of its character, and he advised endolaryngeal removal. The patient was unwilling to undergo any operation, and suffered now from a well-developed carcinoma. In this case endolaryngeal treatment had been feasible and probably successful, although he was well aware that, as a rule, growths in the larynx were much larger in reality than they appeared in the image.

As to the difficulty alluded to in the discussion, he would say that his paper had less reference to incipient cases in which the diagnosis might be in doubt than to cases presenting well-established symptoms in which a competent examination ought not to be delayed if relief was expected. He cited two cases—one related to him by a surgeon of his city, the other from his own practice.

In the first case—one of cancer of the breast—the patient had been allowed to go on without treatment until ulceration had reached an advanced stage, and then the surgeon had been asked to operate because, as the attending physician thought, "he had brought the patient just at the right time to operate." The other case was that of a man, sixty years of age, who complained of being unable to swallow. On examining his fauces there appeared at first nothing but a chronic hyperæmia and thickening of the mucous membrane, but on attempting to examine a bulging of the posterior pillar there was a gush of foul air. The posterior wall opened like a valve and exposed a deep cavity a quarter of an inch in diameter, containing a cancerous growth in an advanced stage of ulceration.

Such cases, which he was confident had been seen by all the members in their practice, showed plainly the propriety of drawing once more the attention of the profession to the necessity not to delay diagnosis and proper action in malignant growths.

A Plea for Early Operation in Diseases of the Antrum of Highmore.—Dr. WILLIAM H. DALY, of Pittsburgh, read a paper with this title. (See page 586.)

Dr. A. W. DE ROALDES, of New Orleans, said he agreed fully with Dr. Daly in regard to the necessity of early interference in all diseases of the antrum. Leaving aside those of dental origin, the purulent inflammations of the antrum, he thought, generally followed an acute coryza or an attack of influenza. In such cases he certainly would not resort to the extraction of a sound tooth in order to make an exploration. The wife of a medical gentleman, a timid person with a fine set of teeth, had last year been his patient. She was very nervous, and would have objected to the loss of a tooth. He had confirmed the diagnosis by catheterizing the antrum and washing the same through its opening in the nostril. The treatment was continued by repeating these injections, and after a short lapse of time the case was discharged cured. For several years he has made it an invariable rule to confirm or deny a diagnosis of purulent sinusitis of the antrum by washing the cavity with a proper cannula introduced through the hiatus semilunaris. In all his experience, extending over one hundred and fifty to two hundred cases, he could recall but two in which the attempt was a failure. In several observations of acute or subacute inflammations this treatment was all that was required to effect a permanent cure. In chronic cases, especially those of dental origin, he could not agree with the author of the paper in regard to the formation of a small opening. In such cases the condition of the mucous membrane was an unknown quantity, but a very important one in the successful handling of the disease. While large polypi, like the beautiful specimens exhibited by Heymann at the congress of Berlin, were comparatively rare, he had often met with a hypertrophied, fungating lining membrane and a polypoid degeneration of the same, which called for a thorough scraping of numerous small, pea-like, gelatinoid bodies. He doubted very much if a small opening in the alveolus would allow a satisfactory manipulation of the curette in all directions. He believed in using a large crown of trephine through the alveolar border, and never considered the question of the passage of food or of germs from the mouth.

His own experience had not been free from some of those chronic and rebellious abscesses of the antrum which were so very difficult to radically cure. In those cases the sooner the antrum was widely opened in the canine fossa and under the influence of a general anæsthetic, the better for the patient and attendant. The finger and the eye must assist in helping to remove all abnormalities which would at times more than explain the intractability of the case. The thorough packing of the cavity with iodoform gauze and the subsequent treatment

of the case on broad surgical lines would generally be satisfactory.

As to the method of Luc, alluded to by one of the speakers, of allowing the patient to wash out his own antrum by passing water from his mouth into the sinus and nose through forcible compression of the cheeks, it was more ingenious than useful. It would do very well for a week, but after this each attempt would congest the head, and a small stream or a few drops only would flow out of the nostril. He favored the use of a Davidson's syringe and a good cannula.

Dr. M. R. BROWN, of Chicago, said he was heartily in favor of the views expressed in the paper. He had himself presented to the association some years ago a thesis on a similar subject. The method of opening had interested him particularly, as he had himself lost a tooth in this way. The best point at which to open the antrum was lower down between the roots of the teeth, near the lower border of the gum. At this point the drill would enter the floor of the antrum and admit of securing good drainage. In the first instance he would make an opening large enough to pass a cannula to which was attached a Davidson syringe. If pus were found, he would enlarge the opening with a burr, No. 18, on the dental scale, until the cannula could be passed into the antrum. He had treated some cases by allowing a tube to remain in the opening, but suppuration had invariably taken place, and he had found it necessary to remove the tube in order to stop the suppurative process. He had cured a few cases by injecting an antiseptic solution into the antrum. The presence of pain above the eye and extending upward, the formation of pus in the nose, and the result of transillumination, were all that could be desired to make a diagnosis. He had used peroxide of hydrogen, but it was not necessary, as a diagnosis could be made without it.

Dr. BRYAN said he thought this was a very timely subject, and he would take this opportunity of making a plea for more conservative surgery in treating this affection. While the opening into the cavity should always be sufficiently large to admit of the thorough local treatment, he did not think such radical procedures as suggested by Dr. de Roaldes should always be resorted to. He found that in the alveolar operation an opening varying from three to five millimetres was ample in recent cases. Of course, in abscesses of long standing where it became necessary to resort to more radical procedures the opening must be made larger.

Dr. C. M. SHIELDS, of Richmond, said he had seen several cases like those described by one speaker, in which suppuration continued so long as the tube remained in the opening. One gentleman had been troubled this way for six months, and he had tried various antiseptic washes, but finally becoming disgusted, he had withdrawn the tube, and at once the man began to get well.

He had been in the habit of getting a dentist friend to make a thin gold tube about the size of a small lead pencil, with a thin collar. The tube could be closed by a valve of vulcanite, which projected a little beyond the cannula. This tube had not given rise to granulations. He saw no objection to making a large opening. This should close in a week or ten days unless there was a specific history.

Dr. W. E. CASSELBERRY said that, in addition to the paper which he had read yesterday on a similar subject, he wished to call attention to the fact that suppuration of the antrum of Highmore rarely occurred alone. It was frequently associated with empyema of the ethmoid cells, the sphenoid cells, or frontal sinuses, and coexisted with nasal polypus. All polypi should be removed, and also the anterior end of the middle turbinated body. The curette should be used thoroughly. He had found the pain above the eyes an almost constant symptom

in his cases, but he attributed it to the conjoined involvement of the ethmoid cells, or, as in one case which was related in his paper on this subject, to empyema of the frontal sinus, the pain, previously intense, having disappeared as soon as this cavity was drained. Although this symptom was an important one, it could hardly be considered as absolutely diagnostic of empyema of the antrum.

Dr. J. C. MULHALL, of St. Louis, said he thought much could be accomplished in these cases by following the lines of general surgery. In cases of purulent infiltration of the antrum, simple surgical procedures would yield very good results. In bad cases of empyema of the lung the resection of a rib sometimes became imperative. Where there was some possible disease of the ethmoid cells, in addition to the disease of the antrum, he did not think so trivial an opening as that made through an alveolus would cure the case. In one case he had made an entrance into the antrum through an alveolus, and had kept hard-rubber plugs in the opening. In the course of a short time several of these disappeared, and it was supposed that they had been swallowed, although the patient was not conscious of having done so. He finally concluded that they had gone into the antrum, and this proved to be the case. An opening was made with a chisel over a molar tooth and just under the malar prominence, and the four rubber plugs were found and removed. Free drainage was established with iodoform gauze, and in a month a case that had lasted two or three years was cured.

The speaker said that he thoroughly believed in the radical operation as the only means of relief and cure. Yesterday some of the speakers had advised against entering the cavity of the ethmoid cells, fearing perforation of the brain cavity, yet they admitted that they had had no experience in such cases. When there was an abscess or a tumor in the skull it was generally conceded that an operation was demanded. When there was an abscess chronic and foul in the antrum of Highmore, he advocated free opening just below the malar bone and above the molar teeth in preference to the alveolar opening. When a chronic nasal purulent discharge was caused by a diseased ethmoid, as was often the case, ordinary surgical principles of curetting and drainage must prevail in order to obtain a cure.

Dr. DALY said that one of the first cases he had operated upon was one of this kind. The patient was a young attorney who came to him with many of the symptoms that had been mentioned in this discussion. After studying the case for some time he had arrived at the diagnosis of abscess in the antrum. The patient was a powerfully built man with a beautiful set of teeth. He was the son of a country dentist. After much persuasion he finally had his tooth extracted, and an opening was made into the antrum through the alveolus. Nothing was found immediately to confirm the diagnosis. The man then upbraided him in very strong language, saying: "You have sacrificed a tooth for which I would not have taken a large sum of money, and in addition you have made a mistake, and have failed to find any disease of the antrum." The speaker said that without replying to the man he inserted a strong curette through the opening, and broke down some lamellæ in the antrum, when at once there was an immediate and profuse flow of purulent matter, so foul in character that he was obliged to open the window.

He did not now think we were justified in extracting a tooth unless it were diseased. In his opinion, the best place to enter the antrum was above and outside the second bicuspid tooth. There was one objection to the method, and it was a grave one—viz., that while the valvelike action of the cheek prevented air from getting into the antrum, it allowed of the en-

trance of food while masticating; the latter, of course, could be prevented by inserting a wooden plug.

Dr. MULHALL asked why it could not be packed with iodoform gauze.

Dr. DALY replied that the treatment was so often prolonged, and for the patients to pack the antrum themselves was a very inconvenient procedure, and all patients could not or would not do it for themselves. There was this to be said in favor of the small opening: that it lessened the entrance of air and food. Moreover, if the opening were made large, there would be difficulty in closing it by a subsequent operation. Those who would follow this advice and use a small opening would profit by his long experience.

Dr. HINKEL asked if he were referring to the treatment of acute cases only.

Dr. DALY replied that he was referring to all cases.

(*To be continued.*)

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Meeting of September 26, 1894.

(*Continued from page 540.*)

Massage versus Removal of the Sound-conducting Apparatus in Non-suppurative Cases of Disease of the Ear.—

This was the subject of a paper by Dr. LOUIS J. LAUTENBACH, who said that it had of late years become more and more evident that the symptoms of defective hearing, tinnitus, and vertigo, when not due to a disease of the auditory nerve, were occasioned, not by a pathological drumhead, but rather by some lesion in the sound-conducting apparatus. The ossicles, instead of being freely movable, one upon the other, were more or less rigid from abnormal attachments between them, or the walls of the middle-ear cavity, or both. In consequence of these attachments the true arch of the ossicles had been disturbed and the stapes was driven into the oval window, often ankylosed, causing pressure on the labyrinth. This pressure on the labyrinthine fluid occasioned the periodical vertiginous symptoms as well as the tinnitus, the defective hearing being due to the rigidity of the conducting apparatus and the contraction of the ossicular arch. This conducting apparatus might be compared to the levers and hammers of the piano. When the key was touched, if the joints of the levers were freely movable the hammer struck the vibrating string; but should there be any rigidity in the mechanism, the key must be struck with more force to produce an equal effect.

The membrana tympani, to which formerly such supreme importance had been given as the essential to hearing, was now known to be of little value in this respect, serving as the outer fixation point of the ossicular chain and preserving by its elasticity the normal ossicular arch, being to some extent a protector of the middle-ear cavity, preventing the ingress of foreign bodies, and being only to a slight extent concerned in the function of hearing by concentrating the sound-waves to the handle of the malleus. It was to the proper movements of the ossicles that we were indebted in the main for the conveyance of sound. If these were abnormally limited in their motion, either by attachments or overweighting, or by a shallowing of the middle-ear cavity, due to the impaction of the stapes or retraction of the membrane, thus shortening the ossicular arch, sounds were not carried at their normal intensity.

It was to these cases of ossicular attachments, overweightings, and shortened ossicular arches that the methods of treatment, pneumo-massage, and ossicular removals were adapted. Ossicular exercise, which the speaker usually termed ossicular massage, had for its object the regular movement of each ossicle

one upon the other, with the consequent changes brought about as to the nutrition of their joints, from the friction and the increased circulation. It aimed to increase the length of the shortened ossicular arch, and also to draw out into a normal position a retracted or adherent membrane, while at the same time it endeavored to loosen a jammed stirrup or one more or less adherent to the oval window. In addition to this, pneumo-massage slightly influenced the round window and the internal-ear fluids within, and likewise exerted some effect on the upper end of the Eustachian tube, as well as the entire mucous lining of the middle-ear cavity. Its action was mild and regular, simulating the effects of a well-trained masseur. It stimulated the parts, put the mucous membrane into healthier condition, hastened the absorption of all morbid deposits, and gave to the muscles and ligaments their normal activities, and at the same time amplitude to the joint movements. Its action being a drawing out of the drumhead, with a corresponding outward motion of the attached ossicles, was therefore directly opposite to that produced by air-concussions and loud sounds, which so often, especially when continuous, occasioned ear diseases, the whole tendency of modern ear use, due to the multiplicity of shops, factories, etc., being to drive in the drumhead and jam the stirrup in the oval window.

This method was not one of destruction, but of construction; it removed nothing; it allowed the parts to remain intact, while it gave to them normal exercise of the muscles, ligaments, and articulating surfaces, and an increased and healthier circulation with correspondingly increased and healthier secretions.

The practical deductions which Dr. Lautenbach had reached as the result of his use of ear massage were:

1. The method was not difficult to apply, and could be used by any one who had a proper conception of the structure and functions of the ear with a knowledge of the pathological conditions present.
2. There was no risk. It had never occasioned harm or made the symptoms worse, nor did it in any way interfere with other treatment.
3. Should it fail in accomplishing the desired result, it did not prevent the use of further measures.
4. It had improved the hearing in over ninety per cent. of his cases.
5. In about ninety per cent. the tinnitus had been relieved.
6. It had perhaps in a little over half removed the vertiginous symptoms.

Ossicular removals aimed to relieve the same conditions by destroying the continuity of the conducting apparatus by taking out either one or more of the ossicles to the outer side of the ankylosis, usually removing at least one of the ossicles of the ankylosed joint. Of late years this had been modified by, in addition to removing one or more of the ossicles, mobilizing the remaining bone or bones.

As to the practical value of these operations there was considerable difference of opinion among operators, but the speaker believed the following statements would meet with little or no opposition from the impartial observer; they were formulated from the observations and results of many operators:

1. These operations were difficult. They required considerable skill and experience. Often the operator was not able to see what he was doing, but must feel his way very carefully. They should be reserved for the ear surgeon, as being the one most to be trusted with such delicate work.

2. The risks were considerable. Cases of permanent facial paralysis, persistent vomiting, and even death had occurred; whereas temporary palsy, acute inflammations of the middle ear, and caries were not uncommon results of the operation.

Sometimes the very symptoms which called for the operation were exaggerated after its performance.

3. Should the operation prove a failure, it usually prevented the adoption of other measures, being thus truly a last resort.

4. It improved the hearing in perhaps a little over twenty-five per cent. of the cases.

5. It relieved the tinnitus in about fifty per cent. of the patients.

6. It had in about half the cases removed the vertiginous symptoms.

Having found, in a case unattended with suppuration, the ossicles to be rigid and not responding to the old treatment, we had either to pursue the massage method or that of ossicular removal; but it would be asked, how were we to decide between the two? There was no need to decide between them, the massage treatment should be instituted, and if unsuccessful, then were we to consider the question of operation. The speaker did not believe any case should be operated upon until after the patient had been at least three months under treatment. He had heard operators say that they never operated until after they had thoroughly examined and for a long time treated the patient, and yet he remembered one day in April of last year that three patients had presented themselves at his ear clinic who had been advised to have the operation performed, not one of whom had been under treatment for the ears, even as much as one visit, the opinion being given upon their first visit to an ear clinic.

During these three or more months the patient should be placed under the best hygienic influences, should be treated locally (nose, throat, and ears) as well as generally. Any part of the body needing it should receive proper attention. The ear treatment should include systematic pneumo-massage and, if deemed necessary, careful phono-massage. If, after three or more months of such persistent treatment, there was no improvement of any kind, and if we were convinced, in a case of impaired hearing, that the auditory nerve retained its functional value, or that the tinnitus or vertigo, or both, were so great as to justify it, then only could we properly countenance an operation. He felt sure that the need of such an operation would rarely arise, even in a very large special practice. Personally he had performed but twenty-four such operations in five years, having treated in that time over four thousand ear patients.

The first of these he had performed in March of 1889, removing the stapes as well as the incus and malleus; the last in August, 1894, removing the incus only. In no other case had he advised the operation. He had held himself ready to do it in perhaps thirty or forty more, having told the patients that perhaps later it might be necessary, but the need for it had been dissipated by treatment.

There were distinct fields for the use of the massage and the removal treatments, the latter being advisable only where the former failed. The author did not think that removal should ever be done without the previous continuous use of massage. To subject patients to operations, with the risk of making the conditions worse, and even that of death, when not absolutely necessary, he considered most reprehensible. After we had tried, and thoroughly tried, all the means at our disposal, including the proper and systematic use of massage, then only, if the symptoms should prove of sufficient gravity, would we be justified in subjecting the patient to the risks before mentioned. He had seen so many of the bad results of ossicular operations (in fact, more than the entire number of operations he had himself performed), and he had so often met with those who had been advised to have it done, and yet had not had their ears thoroughly treated, that he felt it to be necessary to

condemn these operations unless they were done as a last resort to relieve either most distressing symptoms or to endeavor to restore hearing which could not be otherwise improved. For the past few years there had been a great degree of recklessness in advising patients to have these operations performed. He remembered the case of a patient with a watch-hearing distance of as much as eighteen inches ($\frac{1}{2}$ in) in the ear that was to be operated on, without vertigo, and but little tinnitus, being so advised. Now what were his chances of gain? Very little as compared with his chances of loss. He almost surely would have been worse had he submitted to the operation. He mentioned a typical case more fully. It proved interesting from the fact that about six months' treatment had done for the patient more than any such operation could possibly have accomplished.

The history of a case was then related by Dr. Lautenbach. In this case the tinnitus had almost entirely disappeared, there was no vertigo, and her hearing was quite fair for one of her age, much better than he had ever seen as a result of an operation on the ossicles. The ear in which the operation was to have been done, indeed, was now better than the ear supposed to be good.

Was it not better, asked Dr. Lautenbach, to use a method which was painless and which was unattended by any risk, local or general, one which was almost always successful, at least in some degree, and which left the anatomical structures so that, if necessary, we could apply other methods, and which if unsuccessful at most delayed future treatment for from three to six months only, than to subject the patient to an operation which was painful, uncertain in its effects, one which destroyed structures that could not be replaced, so that if unsuccessful, which it was in more than half the cases, the patient left all hope behind, and which sometimes intensified the very symptoms for the amelioration of which the operation had been performed? It seemed to him that there could be but one answer. In non-suppurative cases of ear disease use massage and other necessary treatment first; in case of failure, then only, the operation.

Dr. L. J. HAMMOND said that Dr. Lautenbach's experience did not accord with that of Dr. Knapp and Dr. Dench, of New York, as given at the meeting in Washington. They had seemed to think that the massage treatment did not give the results that had been expected from it. The experience of these and other gentlemen had been that where there was marked retraction with great thickening, the results were not so good as those obtained by the ordinary methods with the Politzer bag and Siegle speculum. The cases that had been at all benefited were the mild ones that would have shown the same result by the routine treatment.

Dr. Lautenbach had laid great stress upon the bones as a conducting medium. There had been a number of cases where the malleus and incus had been entirely destroyed with the membrane, and yet hearing had been perfect. He recalled three such cases. He thought that the bones, as a whole, had very little to do with hearing, except the stapes, and that the hearing depended largely upon the condition of the foot-plate of the stapes over the oval window. If that be markedly bound down, he did not see how massage alone would be of great value. When added to the general routine treatment it might serve a good purpose.

Reference had been made to permanent paralysis following operative treatment. He had done the operation many times, principally for suppurative conditions, and had had temporary paralysis only follow. All operations involving the tympanic attic had been followed by temporary paralysis, and the general opinion was that it was impossible to prevent it in these opera-

tions, owing to the close proximity of the facial nerve. It, however, invariably subsided without treatment in a few weeks.

Dr. E. LARUE VANSANT said that he had had considerable experience with this massage, and in non-suppurative cases had been fairly well pleased with it. Certain cases, however, were not improved, and this might be explained by the pathological condition present. Where the adhesions were not great the case would improve. It might truly be said that they improved almost as well under the use of the catheter and Politzer bag. Where there were marked adhesions binding the drumhead down to the promontory, and probably adhesions between the ossicles, the massage treatment would not break these adhesions, and might not even stretch them. What it would do would be to puff out that part of the membrane not bound down by the adhesions. He had for some time made use of the Delstanche masseur and with it had used Siegle's speculum, and in this way he could easily see when by increased pressure certain parts of the membrane were made to bulge. Indeed, one could almost at once give a prognosis as to whether or not massage would do good.

In non-suppurative cases he thought that it was not wise to recommend removal of the drumhead and ossicles for the permanent improvement of hearing. For intense tinnitus or vertigo it might be recommended in certain cases. It was more preferable than massage for intense tinnitus with vertigo. Lately he had been treating these cases of non-suppurative otitis media with marked retraction by a combination method. He had first made an incision in the drumhead, and then, taking the little trowel-shaped knife used in removing the ossicles, he had attempted to cut through some of the bands in the middle ear, particularly toward the promontory, and had then followed this treatment by massage so as to prevent the reformation of adhesions while healing was going on. He thought that his results had been better than with either method alone.

Dr. GEORGE C. STOUT said that he thought massage and treatment of that kind should be instituted before any operation was recommended, and that this was the general practice. Operation should be reserved for a last resort, and, so far as he could learn, this was the rule with all modern aurists.

The instruments which made a noise synchronous with the massage were as yet considered a doubtful improvement over noiseless massage.

Dr. LAUTENBACH said that he was glad to learn that so many had used massage, but unfortunately most of the methods in use had been crude. He had used Siegle's speculum as a masseur for thirteen years; but this was not the method that he had referred to in his paper. He referred to regular massage, with a definite amount of exhaust used, a definite number of times a minute, studying the case until one found the amount of motion that was desired, and regulating it accordingly. When Dr. Knapp and Dr. Dench had referred to massage they could not have spoken of this method, as they knew not of its use. They had to-day no such instrument in their offices. He understood that they both had the vibrometer and the vibrophone, but not this machine. The methods in use outside of the Siegle speculum and the Delstanche apparatus had been methods of phono-massage and not pneumo-massage. The phono-massage methods had their use not so much in the process of loosening up the sound-conducting apparatus as in stimulating that part of the nervous structures of the labyrinth lying close to the stapes. We were now learning that in plastic and catarrhal disease of the middle ear the proximal endings of the auditory curve—those nearest the stapes—were affected often early in the disease. Often even when the hearing to the watch was quite good the patient had tinnitus. This indicated that the labyrinthine structures

had been affected early. In those cases where there was loss of hearing without tinnitus, phono-massage would be of no service. The main advantage to be derived from phono-massage was in the dissipation of tinnitus. It could not restore the lost hearing.

Speaking of the necessity of a sound-conducting apparatus, he thought that it was a self-evident proposition that the sound-conducting apparatus so carefully constructed, and mechanically so perfect, would not have been there if it had not been needed. He did not think that it would have received so much attention from Helmholtz if it had not had its use. He admitted that he had taken out the stirrup, and the patient could still hear; but he also knew that the patient did not hear perfectly.

He did not mean to advocate massage separate from all other treatment of the ear. He did not think that any case of ear disease was to be treated by massage alone. In his paper he had presumed that all other necessary treatment would be thoroughly carried out. One who tried to treat disease by one method without paying attention to the general as well as the local conditions present utterly failed to comprehend the science of medicine.

Speaking of severe cases, the author referred to a lady, aged thirty-four years, a school teacher, who since early childhood had been deficient in hearing. For eleven or twelve years she had been constantly under treatment and constantly getting worse. Five or six weeks ago a physician had advised her that an ossicle operation was the only thing to be done. Another physician had expressed the same opinion. Dr. Lautenbach had seen her two weeks ago, and since then she had been treated in the ordinary way and with powerful pneumo-massage to the ear. She told him that she could hear her clock at two or three inches from the ear that was to have been operated upon, a thing that she had not done for six years. In the ear the membrane was adherent to the promontory, but had been detached mechanically by the two weeks' treatment.

The massage method did separate the drumhead from the promontory, and it was only a question of time when the adhesions would be removed. The Delstanche masseur, while a good instrument in its way, was not the one that he should prefer in these cases. One could not get with it the precision of motion and persistency that was desired. One could not, if necessary, keep it up for an hour at a time. A method was wanted that would give an easily regulated persistent movement of the ossicles, one that could be used as long as desired, anywhere from five minutes to an hour or even more.

(To be concluded.)

Miscellany.

The Art of Ventriloquism.—The *Revue internationale de rhinologie, otologie et laryngologie* for August 10th publishes a review of a work on this subject by M. Flatau and M. Gutzmann. In the first part of the book, says the reviewer, the authors treat of the history of ventriloquism. It appears from cuneiform inscriptions that ventriloquism was known in Mesopotamia, and that from there it spread to Syria and Palestine. The Old Testament contains many passages which show very clearly that ventriloquism was practiced among the Jews. The most interesting and also the most important history, because of the events that followed, was that of the witch of Endor, who evoked Samuel's spirit before King Saul. She was a ventriloquist, *ἐγγαστριμυθος* in Greek, or possessed of a spirit.

This history served, during the entire middle ages, as a precedent for procedures against witches. In Greece the priestesses of Delphi and Dodona were ventriloquists.

The Greek physicians must have known of this art, but they have given no detailed account of it, although Hippocrates compared the voice of a woman who had throat trouble to that of a ventriloquist. Pythagoras himself seems to have possessed the art, also other men whose names and deeds have come down to the present time. On the whole, during antiquity the art of ventriloquism was made use of especially by those who imposed upon public credulity.

Very little is known of the history of ventriloquism during the middle ages, and it was not of much importance until the year 1600. From that time the data are more numerous, and may be divided into two groups: The first embraces those which relate to the histories of certain ventriloquists and the abuses they practiced; the second contains essays on the physiological explanations of this phenomenon. In the first group the name of the anatomist Casserius appears, who did not hesitate to say that "the second voice of the ventriloquist—if it existed at all—should be, not natural, but magical and diabolical." Among others in the second group are found names celebrated in medical history: Van Helmont, Diglax, Pierre de Castro, l'Abbé Nollet, Haller, and Schaarschmidt, who considered that ventriloquism was produced during inspiration.

It was not until the end of the year 1772 that the experimental method was established. At that time a work appeared on *Ventriloquism, or Engastrimythus*, by the Abbé de la Chapelle, who had been able to persuade the *Académie des sciences* of Paris to examine a ventriloquist named Saint-Gilles. This examination had proved "that the stomach played no part in the production of ventriloquism, and that it was caused solely by a certain constriction of the throat which was acquired by habit." Richerand also, in his *Treatise on Physiology*, attributed this phenomenon to a lowered epiglottis and to a small quantity of air escaping through the glottis. Lespagnol thought he saw the explanation in a very accentuated elevation of the velum of the palate. Geoffroy de Saint-Hilaire thought that the engastrimythus was produced by the aid of a second rudimentary larynx, corresponding to that of birds. Magendie considered ventriloquism as a modification of natural sounds. Jean Müller himself learned the art and thought that it was produced by slow expiration, and in closing the glottis. Liskorius, in 1846, attributed ventriloquism to inspiration.

In the second part of this work the authors give their experiences resulting from the examination of six ventriloquists. Ventriloquism, they think, consists in modifying the voice in such a manner as to deceive those who listen. Examination of the ventriloquist's phonic sounds proves that the vibration of the larynx is very feeble and even imperceptible. The upward motion that the larynx takes during normal intonation is not constant in the ventriloquist; he may even lower it, but he never can hold it immovable. The tension of the velum of the palate is much greater than when the phonetic sounds are normal, and the pillars form a very sharp angle. The uvula has no part in this. The examination of the palate is difficult, and impossible in certain subjects. This relates to the epiglottis, which is forced back and conceals the glottis from the investigator's eye. Nevertheless, M. Flatau and M. Gutzmann were able to convince themselves that the false cords and the cartilaginous portion of the glottis approach so closely as almost to touch each other. The authors have succeeded in photographing the larynx in this condition where the epiglottis and the ventricular bands serve to moderate the emitted sound. The voice also is an octave higher than the natural one, and the respiration is not normal. When the ventriloquist speaks he throws out a

much smaller quantity of air than in ordinary speaking. The epigastrium and the diaphragm remain in the position of inspiration, and the muscles of the abdomen are stretched and contracted. This position may be produced by yawning or by pressing in a physiological effort. It may be the result, also, of different affections.

The psychological phenomena of the listener are based on the fact that we are accustomed to hear always the same voice from the same person, and to estimate the distance according to the intensity of the sound which strikes the ear. These two elements are changed and give rise to two false conclusions: The illusion that the ventriloquist's voice comes from a different direction is produced by variations of tone and of the resonant accessory cavities. Then, the expression of the ventriloquist's face—sometimes astonished or frightened, looking toward the place from where the voice appears to come, etc.—all this helps to complete the illusion.

The Mississippi Valley Medical Association will hold its twentieth annual meeting at Hot Springs, Ark., on November 20th, 21st, 22d, and 23d. The preliminary programme includes the following papers: Cases of Traumatic Cataract in Children Treated by Extraction, by Dr. James M. Ball, of St. Louis; Toxics, by Dr. W. F. Barclay, of Pittsburgh; The Philosophy of Stimulants, by Dr. A. D. Barr, of Calamine, Ark.; Squint, with Special Reference to an Operation, by Dr. Charles H. Beard, of St. Louis; Conservative Surgery, and what it means at the Present Time, by Dr. A. C. Bernays, of St. Louis; The Deeper Inflammations of the Skin, by Dr. A. W. Brayton, of Indianapolis; Intestinal Indigestion, by Dr. A. P. Buchman, of Fort Wayne, Ind.; The Medical Expert Witness, by Robert M. Campbell, Esq., of Ashland, Ohio; Some Observations on Sore Throat due to Concretions in the Tonsils, by Dr. L. C. Cline, of Indianapolis; The Differential Diagnosis of Coma, by Dr. W. J. Conklin, of Dayton, Ohio; Constipation, by Dr. George J. Cook, of Indianapolis; Syphilis, and its Relation to Other Affections, especially those of the Skin, by Dr. William T. Corlett, of Cleveland; Surgical Treatment of Uterine Fibroids; Disposal of the Pedicle, by Dr. A. H. Cordier, of Kansas City, Mo.; Stab Wound of Pericardium; Resection of Rib; Suture of Pericardium; Recovery, by Dr. H. C. Dalton, of St. Louis; Surgical Treatment of Trachoma, by Dr. Davis A. Dean, of Pittsburgh; Possibilities of Medicine, by Dr. J. O. DeCourcy, of St. Libory, Ill.; Some New Instruments and Means of Physical Diagnosis, by Dr. Charles A. Denison, of Denver, Col.; Dr. Archibald Dixon, of Henderson, Ky., will read a paper (subject not announced); Quinine in Chorea, by Dr. Frank R. Fry, of St. Louis; A Few Remarks on the Early History of Rectal Diseases, by Dr. S. C. Grant, of Kansas City, Mo.; Report of a Case of Trephining for Cerebral Clot, with Loss of Vision; Recovery, by Dr. John B. Hamilton, of Chicago; Spot Specialism, by Dr. C. H. Hughes, of St. Louis; The Management and Treatment of Endometritis, and the Prevention of Tubal and Ovarian Diseases, by Dr. W. H. Humiston, of Cleveland; Functional Stenosis, its Relation to Malformations, Dislocations, and Flexions, and Conditions Characterized by Amenorrhœa, Dysmenorrhœa, and Hyperæmias; with a Scientific Rationale in Therapeutics, by Dr. George F. Hulbert, of St. Louis; Dr. W. S. Kerr, of Mansfield, Ohio, and Dr. W. S. Keiley, of Cincinnati, will read papers (subjects not announced); The Neatest Method of Circumcising, by Dr. Bransford Lewis, of St. Louis; Colles's Fracture, by Dr. J. E. Link, of Terre Haute, Ind.; Double Nasal Atresia, due to Small-pox, by Dr. H. W. Loeb, of St. Louis; Tubercular Meningitis, by Dr. I. N. Love, of St. Louis; Physicians' Prescriptions, by Dr. Startling Loving, of Columbus, Ohio; Traumatic Lesions of the Cranium and the

Brain; A Report of Clinical Cases, by Dr. George N. Lowe, of Randall, Kan.; Observations on Residual Urine and Remarks on Perineal Section, by Dr. G. Frank Lydston, of Chicago; Modern Surgical Technique, by Dr. Henry O. Marey, of Boston; Dr. Heine Marks, of St. Louis, will read a paper (subject not announced); Tumors of the Neck, by Dr. Donald McLean, of Detroit; Advantages and Disadvantages of Kraske's Operation, by Dr. Joseph M. Mathews, of Louisville; Resection of the Knee for Separation of the Lower Epiphysis of the Femur; A Case of Two Years' Standing, in a Patient Thirteen Years of Age, by Dr. A. H. Meisenbach, of St. Louis; Accidents and Injuries from Electric Currents of High Potential, by Dr. Harold N. Moyer, of Chicago; The Mental Symptoms of Cerebral Syphilis; A Clinical Study, by Dr. Frank P. Norbury, of Jacksonville, Ill.; Enlarged Tonsils and their Treatment, by Dr. John North, of Toledo, Ohio; My Experience with Cold as a Therapeutic, by Dr. A. M. Owen, of Evansville, Ind.; The Surgical Treatment of Injuries of the Head, by Dr. Charles B. Parker, of Cleveland; Headache, by Dr. Curren Pope, of Louisville; Address on Surgery, by Dr. Joseph Ransohof, of Cincinnati; Syphilis, by Dr. A. Ravogli, of Cincinnati; Reform in the Management of the Insane and the Neurotic Viewed from a Gynecological Standpoint, by Dr. Charles A. L. Reed, of Cincinnati; Retinitis Syphilitica, by Dr. Dudley S. Reynolds, of Louisville; The Spine and the Elevator, by Dr. B. Merrill Ricketts, of Cincinnati; Infantile Paralysis, by Dr. John Ridlon, of Chicago; President's Address, by Dr. X. C. Scott, of Cleveland; Epilepsy, by Dr. C. E. Smith, of Waco, Tex.; Climate and Tuberculosis, by Dr. S. E. Solly, of Colorado Springs, Col.; Toxicity in the Production of Nervous Diseases, by Dr. Albert E. Sterne, of Indianapolis; Constipation from a Surgical Standpoint, by Dr. Leon Straus, of St. Louis; Laparotomy for Pelvic Diseases no Longer Necessary, by Dr. R. Stansbury Sutton, of Pittsburgh; Medication of the Air-passages with a New Atomizing Vaporizer; with Experiments on Animals, by Dr. Homer M. Thomas, of Chicago; The Importance of Urinalysis in Diagnosis, by Dr. A. B. Walker, of Canton, Ohio; Reflex Irritation as a Cause of Disease, by Dr. Edwin Walker, of Evansville, Ind.; Dr. H. O. Walker, of Detroit, will read a paper (subject not announced); Address on Medicine, by Dr. J. T. Whittaker, of Cincinnati; Tumors of the Knee-joint, by Dr. William E. Wirt, of Cleveland; Influence of Inflammation of the Seminal Vesicles in Maintaining Gleet, by Dr. W. N. Wishard, of Indianapolis; Modern Antiseptic and Aseptic Midwifery in Private Practice, by Dr. E. Gustave Zinke, of Cincinnati.

Poisoning from a Spider Bite.—In the October number of the *North Carolina Medical Journal* Dr. Richard H. Lewis, of Kinston, relates the following case in which he himself was the patient: It is, perhaps, he says, not universally known that there is in North Carolina a species of spider whose bite is very nearly akin in its effects to that of the tarantula of the tropics. On Sunday night, June 10th, he was bitten upon the glans penis by one of these spiders. The first sensation was precisely like that which is produced by the nettle. Very soon pains began in the scrotum, and in half an hour they extended across the abdomen. They seemed to travel in a band as wide as the hand, rigidly contracting the muscles as they went upward. In an hour this band was drawn tightly around the chest and the pain was terrible. It seemed as if the ribs and the intercostal muscles had become consolidated like an iron breast-plate, and lightning like pains darted around the bands continually. The author's pulse fell to about 50, his breath came in short gasps, and every inspiration seemed as if it were to be the last one. He became delirious, and when the pain reached the brain he

was in a state of excited horror. In no other words, he says, can it be explained. Hypodermic injections of morphine were given four times during the night. On the following morning he was quieter, and the pain had spread to the legs and to the tips of the toes. During that day he seemed to be some one else, and was not free an instant from distressing pain. Another injection of morphine was given, but the patient was exceedingly restless all that day and during the night. On Tuesday morning the pain left the upper part of the body and settled in the legs and feet. Its character had changed to a sharp, pricking sensation, coming every minute in lancinating stabs, and toward evening the feeling of constriction in the chest passed off. On Wednesday the pain broke up into spots instead of being in bands as before, and acute, stinging pains in all parts of the body, except the head, were constant. From the second joint of the left forefinger to the ball of the right great toe the pain transferred itself with lightning speed. During that day it again left the upper part of the body, confining itself to the legs and feet, and morphine was again given. On Thursday the pain continued, but assumed the character of "nervous rheumatism," and its favorite seat was the loins. The author now determined to try bodily exercise and went into his garden, where he became interested in his work and thoroughly warmed. Profuse perspiration was induced and the pains stopped, but, feeling very weak, he was compelled to rest, when they again set in, piercing and stabbing as before. For about a week the author had no appetite and ate nothing; afterward, however, he ate regularly, but a very small quantity of food sufficed. After that the pains gradually ceased, lingering longest in the toes, and by the 18th of June had disappeared with the exception of occasional stabs in the toes. A few days of sea-bathing completely restored the author to his usual health.

"Thyreoidism"; its Relation to Exophthalmic Goitre and to Hysteria.—The *Gazette médicale de Paris* for October 20th contains a report of a recent meeting of the *Société médicale des hôpitaux* at which M. Bécélère presented a woman, thirty-one years old, who had recovered from myxœdema after treatment with the thyreoid glands of sheep. She had taken, by mistake, at the beginning of the treatment three ounces of the gland in eleven days, and this excessive dose had given rise to symptoms of thyreoid intoxication.

English authors, said M. Bécélère, have described these symptoms as tachycardia, instability of the pulse, elevation of the temperature, insomnia, agitation, polyuria, glycosuria, albuminuria, and partial paraplegia, with a sensation of heat, and sweating. M. Bécélère had further observed an acceleration of respiration, transitory trembling in the arms, exophthalmia, and a staring expression of the eyes.

Was there not, he asked, a striking resemblance between these symptoms and those of exophthalmic goitre? Was not their appearance in exophthalmic goitre allied, perhaps, to a supersecretion of the thyreoid gland?

Furthermore, M. Bécélère had seen that, during the course of his treatment, the patient had had distinctly hysterical symptoms, although there had been no previous neuropathic symptoms, such as aphasia, monoplegia, and anæsthesia of the right arm. Might it not be concluded from this, asked M. Bécélère, that the thyreoid juice excreted in excess was one of the exciting agents of hysteria? Furthermore, he said, when thyreoidism appeared in an hysterical person, it roused hysteria in her, as other intoxications did.

M. Bécélère thought that the syndrome of exophthalmic goitre denoted supersecretion by the thyreoid gland, and that it acted like the poisonings that proved exciting causes of hysterical outbreaks.

Lectures and Addresses.

CARIES OF THE SPINE

FOLLOWED BY COMPRESSION OF THE CORD.*

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LECTURE I.

THE patient before us is afflicted with bone and nervous lesions, which, unfortunately, are too common in every community, owing to the lack of thoroughness in the examination of patients suffering from the incipient stage of caries of the spine, and the failure to comprehend the gravity of the disease when recognized, and to insist upon prompt and effective measures for its arrest before irreparable damage has been done to the spinal cord and nerves.

The history of the present case is typical of the vast majority of this class, and is as follows:

Mrs. M. Mc., twenty-five years of age, born in Austria, accustomed to service, been in Colorado four years, during which time she has been married, was admitted into the nervous wards of the Arapahoe County Hospital, April 12, 1893. Owing to her very limited knowledge of any language except the dialect of her own native province, it was impossible to get a connected history of her case through the aid of any of the foreign-born patients in the hospital.

So far as I was able to learn, her family history presented nothing of importance except the probability of tuberculosis in some of the remote and immediate relatives. During her childhood she enjoyed good health. During the latter part of 1892 and early in 1893 she complained of pain in the lumbar region of her spine, and the pain radiated around the abdomen, and sometimes the pains were felt in the loins and legs. In January, 1893, she became pregnant, and soon after this the spinal pains increased. By April 12th, the time of her first admission to the hospital, her legs were so weak that she was unable to stand. At that time a complete record of her condition was not made, as she remained in the hospital only a few days and left the morning of the day set for a thorough examination. From some notes made at the time I first saw her—the day after she was admitted to the hospital—I find that the legs were almost completely paralyzed; she had imperfect control of the vesical and anal sphincters; the knee jerks, ankle clonus, and lower abdominal reflexes were absent; the plantar reflexes were exaggerated, with hyperæsthesia of the plantar surfaces of the feet; the epigastric reflexes were present; the dorso-lumbar region of the spine was deformed, sensitive, and the seat of constant pain, which was increased by movements of the trunk, and the sensory phenomena in the legs and lower portion of the body were perverted with areas of hyperæsthesia and anæsthesia, but the degree and extent of the sensory disturbance I did not ascertain. She left the hospital presumably because absolute rest in the recumbent posture until the bone trouble should be arrested was insisted upon. Nothing further was heard from her until she was readmitted into the nervous wards of the hospital, October 1, 1893. During this time her

spinal trouble had gradually increased, and in the early part of August, two months before her readmission to the hospital, she had given birth to a child. Examination, October 3d, showed absolute paralysis of all the muscles of the legs and hips. There was double foot-drop, and the leg muscles showed some flaccidity, more on the right than on the left side. There was partial paralysis of the vesical sphincter. At times, the water would flow from the bladder as fast as it found its way into it, and at others the water would accumulate in the bladder until several ounces were retained, when there would occur an involuntary evacuation of the bladder without her knowledge. The anal sphincter was completely paralyzed. The abdominal muscles were partially paralyzed and the abdomen distended with gas.

Knee jerks: Right, a slight reflex could be obtained only when the leg was flexed at right angles to the thigh. Left, present and slightly exaggerated. Plantar reflexes absent. No ankle clonus. Lower abdominal reflexes absent; epigastric, present.

All sensory phenomena were absent from a point in front about two inches above the umbilicus, and posteriorly from a point opposite the spine of the first lumbar vertebra downward. She could not tell when the bladder or bowels were evacuated, nor feel a catheter when passed. Well-marked deformity existed in the dorso-lumbar region of the spine, with arching of the spinal column forward and projection of the spines backward. The deformity included the spines of the eleventh and twelfth dorsal and the first lumbar vertebrae, the greatest deformity existing over the twelfth dorsal spine. The whole region was tender to pressure and the seat of pain.

Soon after her second admission to the hospital she had a severe chill, followed by a rise of temperature lasting three or four days, and ranging from 102° to 104° F., during which time she complained of great pain just to the right of the spine in the lower thoracic region. The part was sensitive to manipulation and the formation of an abscess was suspected. Similar attacks were repeated about once in two weeks for a period of two months. During this time she became very weak and emaciated considerably. No positive evidence of an abscess was manifest, and with free stimulation and the administration of strychnine, iron, cod-liver oil, and nutritious food she eventually began to improve. Abrasions of the skin took place over the sacral region on several occasions, but by means of careful dressing a bedsore was prevented. About January, 1894, her general condition was fairly good, and improvement in bone and cord symptoms became manifest. By March she had regained control of the vesical and anal sphincters and the anæsthetic area was very much lessened. By June, no area of complete anæsthesia could be found, she was able to sit up for a short time each day, could flex and extend the feet, and move the legs at the hips and knee joints. All pain and tenderness in the spine had disappeared. Since then there has been a slow and gradual improvement.

To-day we find her nutrition excellent. The muscles of the legs and feet are fairly strong and not much wasted. There is cutaneous hyperæsthesia over most of the area of former anæsthesia. There is no loss of tactile or any other form of sensation in any portion of the body. Knee jerks are present, the left being slightly exaggerated. Plantar reflexes are very much increased. No ankle clonus. Lower abdominal reflexes absent; epigastric, present. She can support her weight on her legs, but the effort causes painful contraction of the extensor muscles of the legs and thighs. At times, when lying quietly in bed, she experiences painful contractions of these muscles. She also suffers from radiating pains which extend from the dorso-lum-

* Two clinical lectures delivered at the Arapahoe County Hospital, September 22 and 29, 1894.

bar region of the spine along the lower portion of the chest, around the abdomen, into the groins and down the legs.

A discussion on the diagnosis of this woman's trouble is unnecessary, as the symptoms of bone and cord lesion are so obtrusive that caries of the spine and compression of the cord, with resulting myelitis and subsequent degeneration, are evident. On account of the importance of an early diagnosis and prompt and efficient treatment in these cases, I desire to consider with you somewhat in detail the two principal morbid processes (caries of the spine and compression of the cord) from which this patient is suffering.

Caries of the Spine.—Caries of the spine, in proportion to the number of inhabitants, seems to be much more frequent in Colorado than in the eastern or southern portions of this country. There are two reasons for this: One is that a larger percentage of our population follow dangerous occupations, especially mining, in which they are peculiarly subject to injuries of the spine, and the other is that a goodly number of those who reside in Colorado are suffering from chronic tuberculosis. Tuberculosis and traumatism to the spine are the two chief causes that lead to caries of the bones of the spinal column. In regard to sex, the cases which I have observed in Colorado show that males suffer about four times as frequently as females. This seems to be due almost entirely to the character of the injuries to which our male population is exposed. In most countries males suffer more frequently than females, but the difference between the two sexes is not nearly so great as we find it in mining countries. Caries is usually most common in childhood after the third year, and next in young adults; but in Colorado we find an exception to this rule, as adults from the twentieth to the forty-fifth year are by far the most frequent sufferers. If I may judge from my own inexperience, it is a comparatively infrequent malady in childhood in Colorado. I wish to remind you that the disease may occur at any time of life. I have met with a case in a woman sixty-five years old. Gowers has observed it at fifty, and says it has been met with as late as the seventieth year. The author just referred to thinks that it is the most common form of the manifestation of scrofula during the second half of life. Caries may follow injuries to the back in which the bones have not been directly injured, but inflammation may extend to the periosteum and bone substance from the torn and inflamed ligaments. Caries of the spine following traumatism that has not fractured the bones may come on several months after the receipt of the injury, and in some instances after all symptoms of the injury have passed away. It is probable that fracture of the bones of the spine in which there is no displacement may terminate in caries several months after the accident. Syphilis plays an uncertain rôle in the causation of caries. Adjacent inflammation, abscess, and blood poisoning may give rise to disease of the vertebræ.

The inflammation resulting in caries affects the intervertebral substance, the periosteum and the bodies of the vertebræ, and at times their processes. The inflamed structures are swollen and vascular, and later the bodies of the vertebræ soften and break down under the superin-

cumbent weight, resulting in deformity of the spinal column. The spines occasionally become thickened from the results of periostitis.

The soft structures in the spinal canal external to the dura and those immediately surrounding the external surface of the inflamed bones are often the seat of inflammation. The areolar tissue between the dura and the bone is absorbed; the inflammation extends to the external surface of the dura, which becomes thickened by deposits of inflammatory material, and often adheres to the surface of the bone. The accumulation of pus, cheesy material, and other inflammatory products between the dura and bone, and the great thickening of the external surface of the dura, are capable of exerting considerable pressure on the cord, and directly interfering with the function and life of the spinal nerve roots.

The most common displacement is arching forward of the spinal column from giving way of the bodies of one or two vertebræ, and an angular projection backward of one or more spines. Sometimes the curvature is less acute, as it may extend over four or five vertebræ. At times there is a lateral displacement, or the posterior portion of the body of a vertebra may be crushed by the superincumbent weight, when an arching backward of the spinal column results.

The symptoms of caries may be divided into bone, nerve-root, and cord symptoms. The symptoms of bone disease should be as well understood by the physician as by the surgeon, because a failure to examine for these, and to appreciate their importance in an early stage of the disease, may result in irreparable damage before the surgeon is consulted. Gowers is the only author of a work on nervous diseases who devotes any space to the subject of caries of the spine. Admitting, as he does, that the pathological anatomy, symptoms, and treatment of the bone diseases are purely surgical subjects, yet it seems to me that the great importance of the nervous lesions which so commonly result from caries demands for it a place in every work devoted to the diseases of the nervous system, because the vast majority of persons suffering from the early stage of spinal caries consult either the neurologist or the general practitioner before the surgeon's advice is sought. Judging from my own experience, the earliest and most important symptoms of caries of the spine in the adult are pain and tenderness. I am aware that many orthopædic surgeons assert that these symptoms are frequently absent, and of inferior importance when present. This may be true of the disease in early childhood, before the sufferer has learned to give definite expression to its symptoms, but in the adult the statement I have made holds good. I suspect that one reason for orthopædic surgeons laying so little stress upon pain and tenderness is because most of the cases of spinal caries coming under their observation are first seen after the incipient stage has passed.

The pain in the spine is felt at the affected part, and is increased by jarring or rotating the spinal column, by rapid bending of the spine backward or forward or from side to side, and especially by firm pressure over the diseased bones. Gowers considers the local tenderness of very

great importance. It is among the earliest symptoms, and is probably the most constant. It is elicited by direct pressure on the spine of the affected vertebræ and also by pressing the spine from side to side. When the disease is situated in the most mobile portions of the spine, as in the cervical region, movements are the most painful. When it is situated in the latter region movements of the head are greatly restricted and painful. The patient instinctively fixes the head in an abnormal position. Sometimes it may incline to one side so persistently as to simulate torticollis, but the sterno-cleido-mastoid muscle is tense on the side toward which the head is inclined, just the opposite of what we find in the latter disease. With the pain and tenderness, rigidity of the muscles that fix the affected portion of the spine is usually found, especially during the examination. Thickening of the spines with induration of the soft tissues adjacent to them is sometimes found, especially in the cervical region. I have seen a few cases with considerable thickening of the spines in the dorso lumbar region following injuries to this region. Caries of the spine should be detected before deformity is apparent if the patient has sought advice for the early symptoms. In only a few cases is the deformity one of the earliest symptoms. Marked deformity is often absent when the morbid process occurs in the cervical region until considerable progress has been made in the disease. In the dorsal and lumbar regions slight lateral or backward displacement of a spine may often be detected as soon as the body of one of the vertebræ begins to break down. It is unnecessary for me to call your attention to the formation of abscess, which sometimes occurs as a result of spinal caries, further than to remind you that when you find evidences of accumulation of pus in the groin or in parts adjacent to the spinal column you should carefully examine for bone disease.

Nerve-root Symptoms.—The spinal nerves are most frequently damaged when the bone disease is situated in the cervical region. Nerve-root symptoms may be divided into four classes: sensory, motor, reflex, and trophic. The earliest of these, as a rule, are the sensory, but even these are not often sufficiently early for diagnosing the disease in its incipency, except when external pachymeningitis is associated with caries. In a number of cases radiating pains along the course of the nerves are quite prominent. When the disease is high up in the cervical region, the pain extends over the posterior portion of the head; when in the cervico-dorsal, the arms suffer; and when in the lumbo-sacral, especially if the disease is unilateral, the pain is felt along the course of one sciatic nerve, and is not infrequently mistaken for sciatica. When the pains are first felt, the skin over the area to which the affected nerves are distributed is hyperæsthetic, but later irregular areas of partial or complete anæsthesia are present. It is only after the disease has made considerable progress in the dorsal and lower portions of the spinal column that muscular weakness is discoverable. In disease of the cervical vertebræ any muscular weakness that may occur in the arms is easily detected. Muscular rigidity is not an early symptom from irritation of the nerve roots, and it is rarely a very prominent one from this cause. It is, however, as we found, a symp-

tom of some importance early in the disease, when it occurs from voluntary or involuntary efforts of the patient to fix the spine in order to lessen the pain caused by movements of the spinal column.

The reflexes are usually abolished over the area supplied by the affected nerves, and often increased plantar reflex is an early symptom of spinal caries. The mechanism by which the plantar reflexes are increased under such circumstances is not easily explained. It is not entirely, if in part, due to irritation of the nerve roots.

Trophic disturbances are seen only occasionally early in the disease, but more commonly they occur later. When the lower cervical nerve roots are irritated, some derangement of the sympathetic nerve or ganglia may take place, resulting in irregularities of the pupils and vaso-motor disturbances, with sweating, etc. At times muscular wasting of the arms and hands is prominent in caries, and occasionally it is seen in one or both legs in affections of the lumbar and sacral bones. Herpes zoster, occurring along the course of the irritated spinal nerves, is a very infrequent affection from bone disease.

Symptoms of impaired functions of the cord are very frequent as a result of caries of the vertebræ. In the majority of instances they occur after the bone disease has made considerable progress, and are then due to compression of the cord and the resulting myelitis. Occasionally, however, the cord is involved before bone disease is suspected, and, under such circumstances, the spinal marrow probably suffers from inflammation rather than compression, except in cases where the dura has become sufficiently thickened to exert pressure on the cord. As I propose, in connection with the case which we are now considering, to devote some time to the consideration of compression of the cord and the resulting inflammation and degeneration, I shall postpone what I have to say further concerning the cord symptoms of caries until the next lecture.

The diagnosis of caries of the spine in the majority of instances is not difficult, if the chief symptoms are borne in mind and repeated careful examinations are made. Pain in a limited region of the spinal column, increased by extreme lateral, forward, and backward flexions of the spine; deep tenderness, limited to one or two spines, often associated with slight irregularities of the spines at the seat of greatest tenderness; the presence of tuberculosis or the history of an injury to the spine, or of tuberculosis in the family; nerve-root pains, with excess of cutaneous reflex action of the soles of the feet early in the disease; areas of hyperæsthesia, anæsthesia, muscular rigidity or wasting; the youth of the subject, in a majority of instances, and the cord symptoms are points of more or less importance, and should form a guide for a systematic investigation. When evidences of bone disease precede cord symptoms, a diagnosis of caries, with sequential lesions, will rarely be incorrect. When caries and cord symptoms develop at the same time, the former may be overlooked unless care is exercised in examining for it. When cord or nerve symptoms precede distinct evidence of bone disease, there is danger of mistaking the nerve lesion for the primary one; but, even in these cases, an error in diagnosis may be prevented

by carefully examining for the early symptoms of bone disease, such as pain, tenderness, and slight irregularity of the spines. It is exceedingly rare for all these symptoms to be absent, but they may be slight and unobtrusive, and must be carefully searched for. Primary pachymeningitis gives rise to nerve-root and cord symptoms similar to those following caries. The absence of evidence of bone symptoms would be in favor of the former. Pachymeningitis in childhood, or young adults, or in tuberculous subjects, is much more likely to be secondary to bone disease than to be primary. The absence of other causes of pachymeningitis, such as syphilis, alcoholism, and repeated exposures to cold, is in favor of caries. When caries occurs in the cervical region, there may be little or no deformity, and the muscular wasting in the arms may simulate progressive muscular atrophy, but the irregular distribution of the muscular atrophy, the severe pains along the course of the spinal nerves, and the presence of areas of anæsthesia would be sufficient to distinguish this from the progressive muscular atrophy in which the only sensory symptoms are vague rheumatoid pains in the affected muscles. The disease may be mistaken for a primary transverse myelitis when the cord symptoms are early and prominent. Under such circumstances, the presence of the symptoms of the incipient stage of bone disease should be sufficient to put one on his guard. I have met with a number of cases of caries of the spine in which the diagnosis of spinal irritation had been made by physicians of no mean ability. In the latter trouble there are usually two or more points of spinal tenderness, or the parts over the entire spinal column may be sensitive to pressure, and deep pressure does not increase pain over that produced by slight pressure, and in some cases it causes less pain. The absence of irregularity of the spine and areas of anæsthesia is in favor of spinal irritation in doubtful cases, especially in nervous and anæmic females. A diagnosis of hysterical paraplegia with spinal tenderness has been made in young women suffering from caries of the spine resulting in myelitis. The presence of distinct evidence of bone disease and of organic lesion of the cord, which will be found if carefully searched for, will prevent such a mistake. The danger of confounding hysteria when paraplegia is present with caries of the spine is much less than the opposite error, and will not occur if care is used in the examination.

When both the sciatic nerves are the seats of pain in caries of the lumbar or sacral vertebræ, the danger of mistaking the disease for sciatica is not great if it is borne in mind that double sciatica is exceedingly rare, and that every such case should arouse suspicion of the pain being symptomatic of other and usually graver trouble than inflammation of the sciatic nerves. When, however, only one sciatic nerve is involved in caries beginning unilaterally, an error in diagnosis may occur, but it may, as a rule, be prevented if it is remembered that in neuritis due to pressure the nerve below the seat of pressure, while it may be the seat of pain, is not tender until sufficient time has elapsed for descending neuritis to affect the peripheral portion of the nerve. Further, in pressure neuritis the greatest pain is usually experienced at the distal portion of the

affected nerves. After we have satisfied ourselves of the presence of bone disease we must go further, and determine whether it is due to caries, tumor, or an eroding aneurysm. Gowers states: "In the first half of life the presence of bone disease is practically tantamount to the recognition of caries." In the second half of life evidence of disease of the spinal vertebræ should lead us to examine carefully for the symptoms of aneurysm or tumor. The presence of a tumor in another portion of the body, or the history of the removal of a tumor from a person suffering from disease of the vertebræ, should lead us to suspect tumor. The symptoms of bone disease due to aneurysm or tumor are more likely to be unilateral in their early stage than those from caries, and the pain produced by aneurysm or tumor involving the bones of the spinal column, especially on movement, is usually intense to a degree out of all proportion to the pain of caries. I will leave the consideration of the prospects of recovery and the management of caries for the next lecture, when we shall study compression of the cord, especially from disease of the bones.

Original Communications.

A CASE OF COMPOUND FOLLICULAR ODONTOMA

INVADING THE RIGHT ANTRUM OF HIGHMORE
AND OBSTRUCTING THE CORRESPONDING NASAL FOSSA.

*With an Apparatus for Administering Anæsthetics,
especially adapted to Operations in the Mouth, Nose, and Throat.**

By A. W. DE ROALDES, M.D.,
NEW ORLEANS.

ODONTOMATA are still more or less rare, especially those of the variety to which belongs the specimen which I am to submit to you to-day; every case, therefore, deserves to be made public. Our own American literature is, so far as my reading extends, very barren on the subject. French and English authors, particularly during the last twenty-five years, have illustrated the subject with interesting series of cases (Forget, Robin, Broca, Magitot, Panas, etc.; Tames, Heath, Lloyd, Sutton, etc.). These considerations have induced me to lay before you the following case, which, after starting in the border line of general and oral surgery, certainly passed into our domain when the growth invaded the antrum and obstructed the nostril. You will therefore excuse me if, owing to its great interest, I introduce before you this subject, germane to our special studies:

Daniel A., aged nine years, of Natchez, Miss., was brought to my office in the first days of February, 1894. His previous history, as ascertained subsequently through the kindness of Dr. George W. Rembert, of Natchez, is, in the doctor's own words, as follows:

Previous History.—"It was in July, 1892, in the office of Dr. N. L. Guice, and by his invitation, that I first saw the little

* Read before the American Laryngological Association at its sixteenth annual congress.

fellow. An examination revealed *two points* of disease, separate and apart and differing in pathological conditions: 1. On the socket of the previously lost deciduous right central incisor (superior) was found a *fibrous* tissue completely filling the interspace and extending considerably below the line of the adjacent teeth. It also extended above the alveolar border. For some reason (possibly the result of pressure) there was found a deficiency of osseous structure at this point, while the surrounding bone did not appear carious.

2. "Beginning opposite the right canine and extending posteriorly alongside the internal plate of the alveoli to near the tuberosity of the maxilla, and covering a considerable portion of the right palatal bone, was found located an osseous tumor (osteoma) evidently of several months' development. An appointment was given for the day following, and both tumors were removed, with the result that there has been no return of the fibrous, but a partial reproduction of the other growth.

"I again," continues the doctor, "had this little boy for a patient in the spring of 1893. At this time I found an osseous tumor located on the external plate of the alveoli, right side, superior, and covering a portion of the external surface of the right maxillary in the region of the canine fossa. With the kindly and skillful assistance of Dr. Lamkin and Dr. Beekman, this growth was removed on June 20, 1893, and we had hoped a speedy cure might result from it; but in a very short while we discovered that there was necrosis of the maxilla at the point operated upon; and in September following, with the patient chloroformed, we succeeded in removing different fragments of dead bone, resulting in an exposure of the antrum of Highmore. At this time we saw no osseous deposit within the sinus, but noticed the growth that is now most noticeable, being external to the antrum and encroaching upon the orbital and nasal regions. Not knowing for certain whether this enlargement was a reproduction of the original disease or but a hypertrophied condition due to the inflammatory action incident upon the necrosis, we deferred to operate, thinking it wisest to await further development. We are now convinced it is the same in character as the tumors previously removed, and agree with you in advising active surgical interference."

Upon actual examination I find young Daniel A. to be a well-built child of sound parentage, who has always enjoyed good health. No indication of any rickety tendency in early age, nor any history of a fall or blow on the face. Occupying the front of the right cheek is a uniformly hard, painless tumor, covered by sound skin, evidently springing from the superior maxilla, and limited externally and superiorly by the malar bone and by the upper wall of the antrum of Highmore, without, however, any apparent encroachment of the orbit, although upon inquiry the child is found affected with diplopia. The growth is limited toward the middle line by the nose, which on that side of the face is somewhat flattened and more continuous with the cheek than on the other side, as if the ascending process of the maxillary bone has been lifted up slightly. An examination of the right nasal fossa reveals a marked stenosis due to the bulging in the lumen of that channel of the external wall of the fossa. There exists a slight chronic rhinitis, but no exposed bone is found by the most careful probing. The voice is somewhat nasal; there is no perversion of the sense of smell; no lachrymation; no neuralgia, and there are no ganglionic enlargements. By digital examination, the post-nasal space and especially the right choana are found to be free of all swelling. Upon examination of the buccal cavity, a hard tumefaction of the palatal portion of the right superior maxilla is observed, which measures an inch and a quarter antero-posteriorly and nearly an inch transversely. The external and anterior boundaries are fused with the alveolar border. This process is very much in-

creased in width, especially in its posterior half, and on its border are to be found the following teeth, to wit: the right central incisor of second dentition (scarcely erupting), the lateral incisor, the cuspid, the second molar of the deciduous set, and the first or sixth-year molar of the permanent set. In the place of the canine is to be seen an oblong, hard, exposed structure, looking like a piece of necrosed bone, but perfectly fixed in its position; between it and the second molar is a small, irregular depression, leading in the direction of the antrum, in which the patient generally packs a plug of absorbent cotton. There is no discharge of consequence, and the probe when introduced is soon arrested by a hard, denuded, bony resistance.

By forcing water through with a small antral cannula, a few drops are observed to dribble out from the right nostril. Heryng's lamp reveals an absolute opacity of the right cheek and a total destruction of perception of light in the corresponding eye. The diagnosis of a benign neoplasm of the maxilla, probably an osteoma, was made with a reserve, however, to be cleared by obtaining subsequently, from his physician, the previous history of the case in regard to the eruption of the missing teeth, in the socket of which the disease was represented as having first appeared. A radical operation is advised. The patient was brought back a few weeks later, ready to submit to surgical interference, which had to be delayed some days owing to a recent attack of malarial fever.

He entered the New Orleans Sanitarium and Training School for Nurses, and on March 4th, with the valuable assistance of Dr. Souchon, Dr. McShane, Dr. Landfried, and Dr. Delaup, in the presence of members of the polyclinic class, a modified Vallet's* operation was performed under the influence of chloroform.

An incision commencing just below the inner canthus of the eye was carried down the nasal furrow to the ala of the nose, and around it to the inner border of the nostril and median line, then completely dividing the upper lip outside of the frenum. Upon a complete dissection of the cheek flap, and a partial one of the nose flap, the bony opening of the right nostril, together with the anterior wall of the superior maxillary bone, was fully exposed.

After lifting the periosteum a section of bone was made with a chisel, commencing at the lower border of the bony opening of the nostril and extending outward and parallel with the alveolar border as far back as the tuberosity. A similar section was made higher up, just outside the nasal process, without entering the nostril, however, parallel and extending outward, just below the infraorbital foramen.

The inner ends of these sections were united by a third one, taking care, as much as possible, to spare the ascending nasal process. The outer ends were similarly joined by a vertical section, and with strong forceps the whole anterior surface of the superior maxilla was removed from the nostril to the tuberosity and from the infraorbital plate to the alveolar border. Vallet's removal of the outer wall of the nostril was judged unnecessary, as digital examination of the posterior nose had revealed no radiating pressure of the tumor in that direction, and the preservation of the nasal process was considered as very important for subsequent cosmetic effect.

The main mass of the tumor was found on the floor of the antrum corresponding to the canine fossa. Considerable difficulty was found in chiseling it out on account of its eburnated consistence, and also in avoiding fracturing the alveolar border and hard palate, which, when used as a fulcrum to dislodge the

* Résection partielle de l'os maxillaire supérieur pour l'extraction de polypes volumineux des fosses nasales, du pharynx et du sinus maxillaire, par M. Vallet d'Orleans. See *Gazette des hôpitaux*, March 31, 1859.

growth, showed manifest weakness. On the surface of the tumor were tufts of hard, adherent tissue, resembling the lining of an alveolus; a large number of smaller masses, to the number of fifty or more—as a few were lost during the operation—some of them tooth-shaped, were found sequestered in various parts of the surrounding bone under the orbit, and as far back as the tuberosity. They were, however, gouged out thoroughly and easily. The growth had invaded and dilated the whole antrum, leaving no vestige of its lining membrane. After a complete curettage of this large cavity it was carefully packed with iodoform gauze, and the soft parts neatly brought together by six points of suture, with a harelip pin passed through the upper lip, over which an antiseptic dressing was applied.

Outside of a slight attack of otitis which developed on the third day in the left ear, due to a nasal injection when the right nasal fossa was completely occluded, the case progressed rapidly toward recovery, and the patient was sent back home on the 23d of March, since which time he has been attended by Dr. George W. Rembert, who, on May 14th, kindly writes: "It has now been ten weeks since the operation, and the cavity is probably two thirds filled." He thinks it will be necessary, later on, to adopt an obturator in connection with the dental plate. "The right corner of the mouth is slightly drawn backward and upward," adds the doctor, "and quite *likely* will increase some *in the future*, but I do not anticipate any great disfigurement; on the contrary, considering all things, I accept it as fortunate indeed for the young man that it is not much greater. Should he, in after years, wear a moustache or beard, it will be next to impossible to detect the shortening of the right side of the face and the changes in the mouth that will *probably* follow."

As to the cosmetic effect, this post-operation photograph of the patient, just received, and which I beg to pass around, will show, better than any conjecture, how little disfigurement, if any, has resulted from the operation. My only regret is that, owing to a malarial attack, a pre-operative photograph was not taken; I will, however, supplement this desideratum by the accompanying drawing, the dotted lines showing schematically the location and apparent size of the odontoma.

As the microscopical examination of this tumor offered a great interest from the standpoint of the determination of its dental origin, I sent the specimen to Dr. W. C. Borden, U. S. Army, whose kindness and competency I have often put to task. In return I received from him the photographs which I to-day submit to you for inspection, with the accompanying note:

"The specimen received, and I beg to report that it is a compound follicular odontoma. It consists of hypertrophic tooth capsule which ossified in places (sporadically), producing a number of denticles which had originally probably all been bound together by periosteum, the denticles being imbedded in the fibro-vascular structure, much as plums are in a plum pudding. The denticles consist entirely of cementum. A photomicrograph of a ground-down slice of one shows a structure identical with that of cementum of teeth. This osseous structure is very hard and identical with that of the roots of a tooth. The denticles appeared so hard that before I made a section I thought they consisted of cementum, dentin, and enamel, but they have neither of the latter histological structures. I notice that Sutton states that these denticles may consist of either cementum or dentin, or may even be ill-formed teeth,

having all the structures of those organs. In this case the neo-plastic centers developed in the fibro-vascular structure, grew as cementum only, and did not progress as far as dentin or enamel

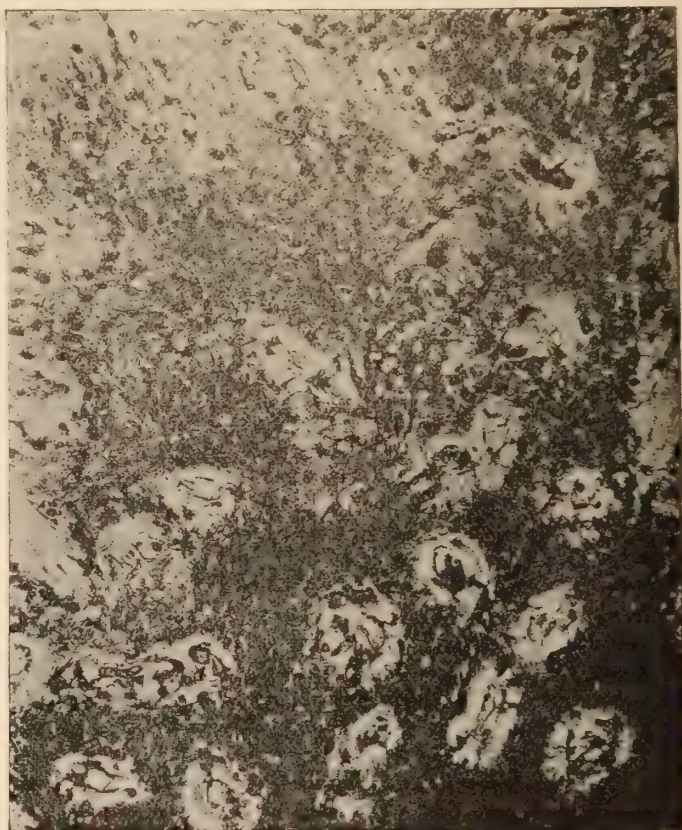


FIG. 1.—Photomicrograph, $\times 125$ diameters, showing the cementum substance from this compound follicular odontoma. The histological structure is that of cementum of tooth.

formation, or rather, as enamel is of epiblastic origin, odontomata of this type are probably hypertrophic growths from cementum centers. The tumor is a very interesting one."

If we accept J. Bland Sutton's classification of odontoma, which, in my opinion, is more advanced and much more satisfactory than Broca's, this growth as removed and presented to you belongs to the division called by him a "compound follicular odontoma." In regard to these he writes in his last work on *Tumors, Innocent and Malignant* (1893), page 36: "If the thickened capsule ossifies *sporadically* instead of *en masse*, a curious condition is brought about, for the tumor will then contain a number of small teeth or denticles, consisting of *cementum or dentin* or even ill-shaped teeth composed of three dental elements—cementum, dentin, and enamel.

The number of teeth and denticles in such tumors varies greatly and may reach a total of three or four hundred. This last number, however, has never been found, to my knowledge, in the human subject. His citation concerning such numbers refers to a case in the horse, mentioned by Logan (*Jour. of Comparat. Med. and Sur.*, New York, 1887), which contained four hundred denticles. He himself has reported the case of a compound follicular odontoma from a thar, which had a growth in each upper

jaw, the denticles numbering in all three hundred. After careful researches on the subject I do not know of any case that can be compared, as to the number of denticles, to the one I to-day bring before you.

The case of Sims contained forty, the one of Tellander twenty-eight, and the one of Mathia's fifteen (all figured in Sutton's work).

Henry L. Albert and Hildebrand are quoted by Sutton as having reported a similar case, but referring to the original observations, I find no mention made of the number of denticles. Strange to say, the growth in almost every one of these five cases was located in the upper right maxilla. I know that Sutton, who was rather arbitrary several years ago in his assertions of the extreme rarity of the odontoma of the

inclined to believe had not erupted. If this view is taken, the location of this odontoma in the incisor region would be a real curiosity, as Professor von Metnitz, of Vienna, in describing a case of that kind, *believes it to be unique* (see abstract of case in the *British Journal of Dental Science*, 1891, vol. xxxiv, page 211).

It is more difficult to explain why, as has been observed, these tumors should more generally affect the right upper and lower jaws. As to the growth which came under my observation for operation, it was undoubtedly connected with the canine tooth which had not erupted. Even that connection is very unusual, as Broca can only cite one case of odontoma developed in the canine region. As a rule, the points of selection for these growths are the pre-molar and molar teeth, and in these last more particularly.

It is to be supposed that the two growths were independent and represented two distinct odontomata. Cases of double odontomata on the same subject are on record, but the growths do not generally develop on the same side of the maxilla. In regard to the diagnosis, "it is a curious fact," says Sutton, "that up to this date there is no instance on record in which an odontoma, other than a follicular one (dentigerous cyst), has been diagnosticated before operation." This assertion is too sweeping, as can be proved by the case of Panas and two or three others. It shows, however, how difficult is a positive diagnosis, especially when the growth remains imbedded in the thickness of the maxillary bones.

The factor which must outweigh all other considerations in the mind of the surgeon is the one relating to the age at which the tumor makes its first appearance; it is pretty safe to assert that any neoplasm which presents itself in the maxillary bones after the completion of dental evolution is not an odontoma. This consideration, coupled with the young age of the patient and the absence of one or more teeth, will assist materially in overcoming our doubts. It is most important, however, to arrive at a precise diagnosis, as the study relating to the literature of odontoma is very instructive, inasmuch as it shows that patients have in many instances been subjected to operations needlessly severe and dangerous.

Before proceeding to excise a portion of the mandible or maxilla, the surgeon must satisfy himself that the tumor is not an odontoma, for this kind of growth generally requires only enucleation and vigorous gouging.

Although the result has been as satisfactory as possible in my case, I now think that a more conservative procedure, through the mouth and canine fossa, might have been adopted with equally as good results.

In conclusion, I wish to say that at the request of my friend, Professor Edmond Souchon, of New Orleans, the new apparatus which he has contrived for administering anæsthetics was made use of in connection with this case. Chloroform was administered by the ordinary method; but from the moment the operation began, the anæsthesia was kept up with the above-mentioned apparatus for over an hour, to the thorough satisfaction of myself and of all present. The anæsthesia was perfect during the whole

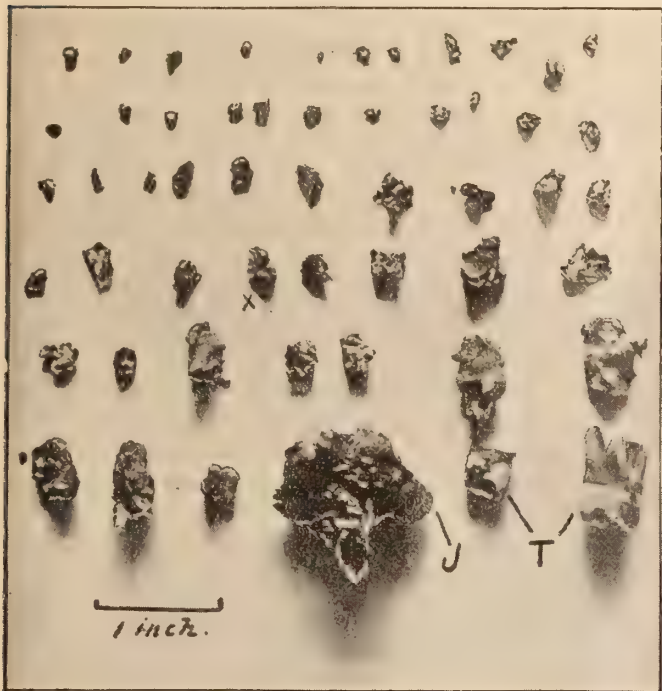


FIG. 2.—Photograph representing T, teeth; J, part of jaw with teeth attached. The other fifty pieces are denticles consisting of cementum. A selection of the denticle marked X is shown magnified in Fig. 1.

superior maxilla, as compared with those which develop in the lower jaw, has now modified his views, as more cases are published and a more thorough microscopical examination is made. The fact is that evidently before Broca, in his remarkable memoir, called the attention of surgeons to this subject, a great many cases described as fibrous tumors and exostoses of the antrum were nothing else but odontomata. Such cases are now very well defined by careful microscopical investigation, and shown to be neoplasms composed of dental tissues (enamel, dentin, and cementum) in varying proportions and different degrees of development, arising from tooth germs or teeth still in the process of growth—in fact, real odontomata. While unable to substantiate the statement on histological grounds, it is to be presumed that in this case what was described by Dr. Rembert as a fibrous growth and removed by him, without any reproduction since, was a fibrous odontoma in connection with the right central incisor, which was supposed to have been lost by premature dissolution of its fang, but which I am more

operation, and I did not have to stop a minute until it was completed. At one time, owing to accumulation of blood in the throat, due to the fact that the artery had been severed closely to its exit from the infraorbital canal and could not be seized with the forceps, the head of the pa-



FIG. 3.

tient was lowered and kept in Rose's position quite a while without any interference whatever of the anæsthetist with the operator. Barely three quarters of an ounce of chloroform was used. Professor Souchon, who was kind enough to himself administer the anæsthetic, informs me that he has tried his apparatus with equal satisfaction in several operations at the Charity Hospital.

Bibliographical References.

- Oudet. Case of Odontoma, communicated to the Faculty of Medicine of Paris in 1809.
- Dupuytren. Kyste à parois osseuse et contenant une tumeur fibreuse, etc. *Gaz. des hôp.*, tome ii, 1829-'30, p. 134.
- Owen, R. *Atlas of Odontography*, 1840-'45, plate 27.
- Forget, A. Notes sur les tumeurs dentaires, leurs variétés, leurs diagnostic et leur traitement. Nouvelle observation d'odontome cémentaire. *Union méd.*, Paris, 1868, pp. 629, 635.
- Forget, A. Étude histologique d'une tumeur, etc. *Bull. de la Soc. de chir.*, Paris, 1861.
- Mathias, C. Case of Odontoma, recorded by Sir John Tomes. *Trans. of the Odontological Soc. of Great Britain*, vol. iii, 1861-'63, p. 365.
- Tellander, C. Case of Odontome, reported to the Odontological Society of Great Britain, December, 1862.
- Robin. Sur une nouvelle espèce de tumeur formée au dépens des tissus des bulbes dentaires. *Mem. de la Soc. de biologie*, 1862, p. 199.
- Tomes, Sir John. Description of a Remarkable Case of Exostosis (case of Mr. Hare, of Limerick). *Trans. of the Odontological Soc. of Great Britain*, 1861-'63, p. 335.
- Harrisson, Dr. W. A. Case of Odontoma, Communication to the Odontological Society of Great Britain. *Brit. Jour. of Dental Science*, December, 1862.
- Walker, J. On Exostosis. *Trans. of the Odontological Soc. of Great Britain*, 1861-'63, p. 313.
- Hildebrand, C. Odontome. *Zeitschrift für Chirurgie*, Bd. xxxi, p. 282.
- Bilroth, C. Case of Odontoma. *Virchow's Arch.*, Bd. viii, p. 426.
- Forget, A. *Des anomalies dentaires*, Paris, 1859; also in Heath's work on *Injuries and Diseases of the Jaws*.
- Forget, A. Des tumeurs dentaires—odontomes fibreux. *Union méd.*, Paris, 1868, pp. 165-170.
- Broca, C. Recherches sur un nouveau groupe de tumeurs désignées sous le nom d'odontomes. *Bull. de l'Acad. des sci.*, Paris, 1867.
- Letenneur, C. Odontome radulaire cémentaire. *Gaz. des hôp.*, Paris, 1868, p. 158.
- Weinlechner, C. Case of Odontoma. *Wochenblatt der Gesellschaft der Wiener Aerzte*, 1869, No. 29.
- Broca, C. Odontomes. *Traité des tumeurs*. Paris, 1869, tome ii, p. 265.
- Heider and Wedl. *Atlas zur Pathologie der Zähne*. Leipsic, 1869, plate iii, Figs. 34-39.
- Magitot. Odontome développé sur la défense d'un éléphant, pièce présentée à la Société de chirurgie. *Gaz. méd. de Paris*, 1869, p. 176.
- Guyon et Monod. Art. Odontomes. *Dict. encyclopédique des sciences méd.*, 2me série, vol. v, p. 444.
- Tomes, Charles. Case of Mr. Hare Re-examined and Redescribed, and Considered To-day as a Genuine Odontoma. *Trans. of the Odontological Soc. of Great Britain*, 1872.
- Annandale. Case of Odontoma. *Edinb. Med. Jour.*, January, 1873.
- Scheff, J. Ueber Odontombildung. *Wiener med. Presse*, vol. xvii, 1876, pp. 890-919.
- Panas. Odontome odontoplastique fibreux, avec grains dentinaires éparpillés, etc. *Bull. et mémoires de la Soc. de chir. de Paris*, pp. 347-356.
- Salter, S. J. A. Two Odontomas, associated with Cysts. *Guy's Hosp. Reports*, London, vol. xxi, 1876, pp. 220-226.
- Magitot. *Traité des anomalies du système dentaire*. Paris, 1877, p. 232.
- Moon. Case of Odontoma. *Trans. of the Odontological Soc. of Great Britain*, vol. x, 1877-'78, p. 30.
- Fothergill, Edward. Case of Odontoma, exhibited to the Odontological Society, by Mr. Coleman. *Trans. of the Odontological Soc. of Great Britain*, 1879-'80, p. 2.
- Uskoff. Ueber ein grosses Odontome der Unterkiefer. *Virchow's Arch.*, Bd. lxxxv, 1881, p. 537.
- Heath, Christopher. A Case of Odontoplastic Odontoma. *Trans. of the Clinical Soc. of London*, vol. xv; *Dental Record*, vol. i, 1881, p. 199; also in *Lancet*.
- Praeger, Alfred J. A Case of Odontoplastic Odontoma. *Dental Record*, vol. i, 1881, p. 198.
- Underwood, A. S. A Remarkable Odontoma. *Jour. of the Brit. Dental Assoc.*, vol. iii, 1882, p. 103.
- Fergusson, Sir William. Case of Odontoma. See Tomes's *Dental Surgery* or Heath's *Injuries and Diseases of the Jaws*, 1884, p. 217.
- Heath, Christopher. Odontoma. *Brit. Med. Jour.*, 1887, vol. i, p. 155.
- Lagrange. Notes sur un cas d'odontome embryoplastique, etc. *Gaz. hebdomadaire*, 1885, p. 241.
- Sutton, J. B. Comparative Dental Pathology. *Trans. of the Odontological Soc.*, 1884-'85, p. 42.
- Sutton, J. B. On a Remarkable Case of Odontoma in a Thar. *Jour. of the Brit. Dental Assoc.*, vol. xxxi, 1888, pp. 301-303.
- Sutton, J. B. On the Relation of Rickets to some Form of Odontoma. *Trans. of the Odont. Soc.*, 1888-'89, p. 138.
- Sutton, J. B. Paper on the Classification of Odontomas. *Jour. of the Brit. Dental Assoc.*, vol. iii, 1882, p. 103.
- Arkovy, J. Notes on an Odontoma, with Histological Drawing. *Jour. of the Brit. Dental Assoc.*, vol. viii, 1887, pp. 3-43.
- Simms. Case of Odontoma, reported by Prof. Windle and Mr. Humphreys. *Jour. of Anat. and Physiol.*, vol. xxi, 1887.
- Lloyd, Jordan. Composite Odontoma of the Upper Jaw. Removal. *Lancet*, 1888, vol. i, p. 64.

Goodwillie. Case of Odontoma, mentioned in Agnew's *Surgery*, vol. ii.

Logan, A. H. Case of Cystic Tumor, Extirpated from the Facial Sinus of a Horse. *Jour. of Comparative Med. and Surg.*, New York, 1887.

Albert, Henry L. Successive Eruption of Supernumerary Teeth from a Bony Tumor of the Upper Jaw. *Illustrated Med. Jour.*, August 10, 1889, p. 125.

Von Metznitz. Case of Odontoma. Abstract in *Brit. Jour. of Dental Sci.*, 1891, p. 21.

Heidenrich, A. Odontomes. Duplay, *Traité de chirurgie*, Paris, 1891, vol. v, p. 137.

Dunkerly, J. W. Odontomas. *Brit. Jour. of Dental Sci.*, vol. xxxv, pp. 1-11.

Sutton, J. B. *Tumors, Innocent and Malignant*. Philadelphia, 1894.

No. 624 GRAVIER STREET.

A CASE OF NEUROTROPHIC LESION OF THE TONSIL, VELUM PALATI, AND UVULA, COMPLICATING MULTIPLE NEURITIS.

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THE diagnosis of this case was based on the mode of origin of the ulcerative process, the progression of the symptoms, the phenomena associated with its healing, and the fact of its occurrence during the course of an extensive neuritis which involved most of the peripheral nerves on the corresponding side of the body.

I have not seen any report of a similar instance of this necrotic change of the tissues of the tonsil and palate as a dystrophy of neuritic origin, though it is probably not unique, for there have been cases of ulcerative hemiglossitis from trigeminal disease reported, as well as numerous observations of tympanic and drum inflammations, suppurations, and ulcerations resulting from pathological states of the pneumogastric, or of the Casserian and otic ganglia and their anastomosing fibers. The location of the lesions in this instance would suggest the implication of the sphenopalatine ganglion, either by inflammation of the perineural tissues of the ganglion itself, or by way of reflexes participated in by the nerve fibers connecting it with the faucial, palatine, nasal, and aural structures.

The pathological physiology of these trophic lesions is not perfectly understood, but, so far as I can understand it, not being skilled in the learning of the neurologists, it seems to be the present impression, subject to modification by future research, that the inflammatory and hypertrophic lesions are more intimately connected with derangements in the sensory, and ulcerative, necrobiotic, and gangrenous changes, with the motor nerves. The complex anatomy of the nervous system, and the impossibility of ascertaining the relations of its microscopic fibers and cells by dissection, make it necessary to rely largely on the observation of the natural experiments prepared for us by errors in development, by the results of inflammatory and degenerative processes, and by traumatism.*

The patient in this case was a man, fifty-one years old, a scientist and inventor. He had been engaged for several years with extensive experiments in the preparation of steel implements of war to meet the requirements of modern ordnance, laboring long and arduously with both mind and body.

About a year before I saw him, which was in March last, he became exhausted from excessive toil, and also, probably, from anxiety for the success of his inventions, which were of international importance. The breakdown was accompanied by an attack of what was at first supposed to be articular rheumatism, but which was subsequently diagnosed by my friend Professor Landon Carter Gray as a diffuse neuritis.

There were severe neuralgic pains, numbness, and incomplete paresis of the left upper extremity; less pronounced but similar affections of the lower limb, œdema, tapering fingers, and glossy skin. He suffered also from the most intense neuralgia of the left side of the face, including the ear, nose, and tongue. The hyperæsthesia was such that the most delicate touch gave him agonizing pain. There had, besides, been an eruption, either eczematous, as he said, or herpetic more probably, in the left temporal and malar regions.

About three weeks before I first saw him he began to have difficulty in swallowing, and on looking at the throat he found that there was a commencing ulceration of the left tonsil. The pain and dysphagia increased from day to day, and when he came to Brooklyn at the end of two weeks to consult his brother, who is a physician, it had become impossible to swallow anything but liquids, and even this caused the most intense pain.

When the doctor inspected the throat he was astonished and alarmed by the extent and character of the ulcer, which, in the short space of two weeks, had denuded the entire buccal surface of the left tonsil and extended to the outer two thirds of the anterior pillar of the fauces, which it threatened to destroy, thence invading the surface of the palate almost as far as the base of the uvula.

The surface was very irregular, particularly the tonsillar portion of it, which looked as if composed of large granulations with very deep depressions, or lacunæ, between them. In fact, the latter probably represented the natural lacunæ or crypts of the tonsil excavated on all sides, but with their depth diminished by the destruction of the tissues which had surrounded their mouths.

All the structures involved were considerably swollen, and of rather a dusky hue, but not indurated. The hyperæsthesia was so great that the doctor was unable to see anything of the posterior pillar or of the palato-pharyngeal region.

The phagedænic appearance of the sore and the extreme sensitiveness of its surface led the doctor to cauterize it with pure creosote.

The slough separated piecemeal in four or five days, leaving a surface less ragged than before, and with less of the grayish-yellow, pulpy look which had characterized it at first. The rapidity of its extension had also been somewhat less, perhaps on account of the altered tension caused by coagulation of the outer portion of the mass.

Its size was, however, still increasing, and the pains connected with it were not abated.

When the patient was brought to me, about three weeks after the beginning of the tonsillar and faucial ulceration, the local appearances were the same as those already described, excepting that the surface was cleaner, and that the area of the ulcer was increased so that it involved the anterior surface of the velum as far as the median line, and to a point about a

* An admirable study of the subject, probably the best that is accessible to the general medical reader, is the article on Trophoneuroses,

by Professor Samuel, of Königsberg, in Eulenburg's *Realencyclopädie der gesamt. Heilk.*

centimetre above (or anterior to) the base of the uvula. . At the junction of the left border of the uvula with the free border of the velum it had made a notch that suggested an impending amputation.

I was also able to ascertain that the outer half of the posterior aspect of the velum and posterior pillar was included in the ulcerative process, which had reached downward as far as the pharyngo-epiglottic fold.

The color of the mucous membrane was deeper than in ordinary inflammations, approaching crimson rather than scarlet, and indicative of venous stasis. This appearance extended to the hard palate, as far forward as the first molar, and blended very gradually with the somewhat lighter tint of the opposite side. The left tonsil was enlarged sufficiently to come in contact with the whole length of the uvula, which was slightly œdematous.

It was impossible, owing to the unbearable pain caused by only a little pressure, either on the diseased tissues or the base of the tongue, to get a view of the interior of the larynx; but the superior rim, formed by the epiglottis, the aryæno-epiglottic folds, and the eminences of the cornicula, was not encroached upon.

The submaxillary glands of the left side were enlarged. On the right side there was slight glandular swelling, but not more than would result from the functional derangement of the corresponding lymphatic districts in the mouth and throat.

Of the constitutional conditions it is only necessary to say that the afternoon temperature was 100° F., the pulse rapid (110), and the aspect of the patient expressive of the exhaustion consequent on long suffering and loss of rest.

The urine was hyperacid, and, a condition to which much clinical weight should be given, *it was acid throughout the twenty-four hours.*

The bowels were inclined to be constipated, but had been regulated by the judicious use of laxatives.

The diagnosis was from carcinoma, lupus, and syphilis. The rapidity of its progress excluded the first two, which were also rendered doubtful by the entire lack of induration of the base and margins of the ulcer. Besides, the associated lymphatic glands would have been much larger, in the case of such a rapidly growing and ulcerating cancer of the tonsil, than they were, in this instance; if, indeed, we were justified in supposing that such an extraordinarily rapid growth could occur.

The lesion which was at once suggested on looking at it was syphilitic phagedæna.

So rapid was the destruction of the tissues implicated that the doctor, when he first saw it, only two weeks after the beginning, found parts of the surface, particularly at the edges, gangrenous.

There was, however, no history of either the primary lesion or any of the secondary phenomena of syphilis; and there were two children, neither of whom had ever had any of the symptoms of an hereditary taint. The facts that there had been an extensive neuritis which had not yet entirely subsided, and that some of its most decided symptoms had been within the area of distribution of the trifacial nerve, together with our knowledge of the trophic lesions so frequently resulting from that disease were sufficient on which to base at least a tentative diagnosis.

Besides the symptoms given as relating especially to the lesion of the tonsil and palate, there were five others which were probably immediately connected with the diffuse neuritis, but whose relations to the ulcerated region, both topographical and as regards their innervation, were such that they might fairly be considered as affording corroborative testimony as to the tropho-neurotic nature of the inflammatory and necrotic disease. These four symptoms were as follows: 1. A differ-

ence in the sizes of the pupils, the left being smaller and not responding so readily to the impact of light. 2. A relaxed condition of the small blood-vessels, with a slight, dull reddening of the skin, slight œdema, and occasional transient flushing. Along with this vaso-motor disturbance there was some lachrymation. 3. Congestion of the drum membrane and paroxysms of the most intense pain in the auricular region, extending to the throat. 4. Throbbing of the carotids. 5. The gums were swollen and soft, with dark-red borders, and a tendency to loosening of the teeth.

The treatment was begun by putting a very small pledget of absorbent cotton, saturated with an eight-per-cent. solution of cocaine hydrochloride, into the left nostril, so that the fluid might pass backward to the orifice of the Eustachian tube, the posterior surface of the palate, and the tonsil, the last being rendered feasible by the projection of the swollen gland, so that it would catch any liquid coming from that direction.

This enabled me to depress the base of the tongue obliquely toward the other side, and to thoroughly cleanse the surfaces with Seiler's solution of half the ordinary strength.

He was then caused to hold the mouth piece of an Evans's inhaler well back in the mouth, letting the finely nebulized spray of a twenty-per-cent. solution of carbolic acid pass through the nose quietly, as it must with gentle breathing, the mouth being closed. This was continued for half an hour.

Constitutionally, he was treated on the antirheumatic plan. The first step was to furnish him with an alkali and some litmus paper, with directions to test the reaction of the urine at every act of urination, in order that we might regulate the dosage of the alkali in accordance with the color of the paper.

He was also put on a mixture of the iodide of potassium and the bichloride of mercury.

He was allowed to continue to spray his throat (though only once or twice a day) with a solution of hydrogen peroxide which he had been using, but soon found, as I had feared, that it was productive of too much pain, although it acted well otherwise. At bedtime he took a powder of morphine and phenacetine.

It was not possible to get the urine thoroughly alkaline, as the combination of the bicarbonates of sodium and potassium which was prescribed produced nausea if given in sufficiently large doses; but the acidity was brought below what would be normal with a healthy man. Subsequently he was put on a mixture of colchicum and the salicylate of sodium, with enough of the bicarbonate of sodium to neutralize the slight acidity of the salicylate. As the slow improvement in the general neuritis was considerably accelerated while he was taking this mixture, I concluded that the constitutional condition of rheumatism, or rather of rheumatic gout, was, as I had supposed it to be, a cause of his disease. After a few days the local treatment was changed.

The region affected was first partly anesthetized with cocaine, which was in the strong solution (eight per cent.), introduced into the left nostril, and then in a very weak solution (one to two per cent.) sprayed into the throat, the object being to reduce the sensitiveness so that he could bear further treatment, but to avoid anything like complete anesthesia, which might, I feared, be followed by a subsequent relaxation of the blood-vessels and a greater tendency to necrosis. The parts were then washed by spraying against them a diluted Seiler's solution, sometimes with a little tannin added to it to coagulate the pus and favor its removal. The spray was thrown against the surface by a pressure of from fifteen to twenty pounds to the square inch,* which was as much as he could bear. After

* Using a Sass's tube with a very fine orifice, which divides the spray more thoroughly and diminishes the impact.

the cleansing he inhaled a nebulized spray of pure eucalyptol (Merck) for from half an hour to an hour.

On the third day it was evident that the tonsillar surface was improving. The depressions were not so deep, and the projecting portions were rounded up.

The palatine portion looked cleaner, but the ulceration slowly extended into the uvula and soon involved the left half of its anterior surface and all of its left border. The posterior surface and the right side were intact.

On the uvula, however, the ulceration was quite superficial, apparently not destroying much more than the epithelial layer.

This was dried and touched lightly with a small pledget of absorbent cotton moistened at its extremity only with a fifty-per-cent. solution of the nitrate of silver. This can always be done without producing any pain if properly managed. The method is to have the part dry; to have the cotton tightly wound on a probe so that the end shall be small and compact; and to wet only the end, so that the liquid is drawn upward by capillary attraction and no drop can be formed at the point. It is then touched to one point and held a moment, never moved about.

Under this treatment the progress was steadily toward recovery, which was completed at the end of four weeks.

A CASE OF SUBCHORDAL SPINDLE-CELLED SARCOMA, AND ITS SUCCESSFUL REMOVAL BY THYREOTOMY.*

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UPON May 30, 1891, I was called in consultation by the late Dr. George Ross to see Mrs. McQ., aged twenty-two years, in reference to marked dyspnoea, evidently due to laryngeal obstruction, from which she was suffering.

The patient stated that she began to be hoarse four months ago, and that this had gradually increased until there was almost complete aphonia. Dyspnoea set in four weeks ago and slowly increased, until within the past two weeks it had been so marked as to prevent the patient lying down, and for the past few days any attempt to lie down would bring on an attack of suffocation. Within this last-mentioned period—two days—inspiratory stridor has set in, accompanied by depression of the supraclavicular, infraclavicular, and suprasternal regions.

The patient is thin and anæmic-looking, is between eight and nine months advanced in pregnancy (primipara); her facial expression is that of anxiety; sits in the upright position all the time, mouth widely open, and respiration is carried on with a good deal of distress; her voice is aphonic and inspiration is accompanied by marked stridor.

Family and personal histories are absolutely negative regarding any phthisical, syphilitic, or malignant taint.

Laryngoscopic examination revealed a large subglottic tumor, occupying so much of the space below the cords as to leave only a very small chink, equal to the size of an ordinary knitting needle, between the posterior surface of the tumor and the posterior wall of the larynx, through which respiration is with great difficulty carried on.

The surface of the tumor is of a dusky red color and upon it several small distended vessels are discernible.

The movements of the vocal cords are perfectly free and they

meet well over the surface of the tumor in the median line. The right vocal cord is congested at its anterior third.

I advised preliminary tracheotomy as being at the present moment urgent and necessary in order to relieve the dangerous supervening symptoms of possible suffocation. Consequently, on the following day I performed tracheotomy, being kindly assisted by Dr. Roddick.

Chloroform was administered only to incomplete insensibility. There was nothing unusual to note during the steps of the operation, further than that the isthmus as well as the lateral lobes of the thyroid gland were much enlarged, and coming down from the isthmus to join the transverse innominate vein were three very much dilated veins, each about the size of a goose quill. It was found necessary to ligate the middle one, which lay upon the center of the trachea, the others being held to one side. I decided to open the trachea as low down as possible, because it was uncertain how far down the tumor might extend into the trachea. Upon the introduction of the tube (Durham) the breathing at once became tranquil and easy.

Twelve days later, the patient having hitherto progressed satisfactorily, the temperature having never risen above normal, upon consultation with Dr. George Ross and Dr. J. C. Cameron, it was decided that premature labor should be induced, and with that in view Dr. J. C. Cameron undertook the charge of the case.

Two days subsequently the patient was delivered of a well-developed female child.

The influence of this delivery upon the condition of the tumor was striking. Laryngoscopic examination showed that the laryngeal tumor had decreased in size, leaving, consequently, a larger breathing space, and the hyperæmia of the right vocal cord which was seen earlier in the progress of the case had completely disappeared, leaving it perfectly white, and when the tracheal wound was closed the patient could breathe more freely, though still the breathing was labored.

Three weeks after the confinement the operation for removal of the intralaryngeal tumor by means of thyreotomy was undertaken.

In this procedure I was kindly assisted by Dr. Shepherd. Chloroform was administered through the tracheal cannula by Dr. Evans.

The site of the operation was thoroughly cleansed by means of hot water and soap; the head thrown back over a round pillow. The incision was made in the median line from the upper border of the thyroid cartilage to the lower border of the cricoid cartilage, continuing the dissection until reaching the thyroid cartilage, and during these steps there were several veins cut which bled very freely, and the amount of fat surrounding the structures added to the difficulty of readily exposing the thyroid cartilage; this when thoroughly exposed was incised from above downward, exactly between the two alæ, throughout their entirety, and continued through the crico-thyroid membrane to the upper border of the cricoid cartilage.

The alæ were held apart, thus completely exposing the tumor, which was drawn up and out of the larynx and twisted off close to its site of attachment.

The larynx was now thoroughly explored by means of transmitted light, and by the aid of a rhinoscopic mirror inside of the larynx it was seen that the tumor had had its origin on the right alæ of the thyroid cartilage, just below the vocal cord on that side.

The site of attachment of the tumor was then cauterized with chromic acid. After tying all the bleeding points which had been secured by Péan's forceps, I endeavored to suture the alæ of the thyroid cartilage, but the needle broke on one occa-

* Accepted as a candidate's thesis for membership in the American Laryngological Association, May, 1893.

sion, and on the second it cut through the cartilage; in order then to bring them together, I passed three deep sutures (silk-worm gut), approximating thus the deeper structures; superficial ones closed the wound. The dressing consisted of powdered iodoform and bichloride gauze.

The tumor after removal weighed twelve grains, and measured eighteen millimetres long, twelve millimetres wide, and seven millimetres in thickness.

The tumor was kindly examined by Dr. Finley, who described it as "a spindle-celled sarcoma with the formation of strands of young fibrous tissue, rich in embryonic blood-vessels." This has kindly been corroborated by Dr. Wyatt Johnson and Dr. Adams.

The patient made an uninterrupted recovery, the temperature never rising above 98.5°; was up five days after the operation, and left for home four days subsequently.

Twelve days from date of last operation the tracheotomy tube was removed, and the wound soon closed.

However, just at the lower edge of the thyroid cartilage a small granulating opening remained, and in spite of all endeavors to close, it refused to do so, until one day, after searching for some foreign body which probably was preventing its closing, a buried silk-worm-gut suture was removed, and upon its removal the opening soon closed, and the granulating mass which was seen in the larynx at a point corresponding to the opening outside soon disappeared, leaving the anterior wall of the trachea quite smooth.

I frequently examined this patient, and saw her only four months ago, previous to her leaving the city permanently, and found the subglottic region perfectly normal in appearance and no evidence of any recurrence of the growth; the vocal cords retained the normal pearly white appearance and the voice was absolutely without any alteration in its natural tone.

This case, so far as I am able to ascertain from the literature at my disposal, stands unique, for I find no record of any case of subchordal spindle-celled sarcoma in which the operation of thyreotomy had been performed, and no evidence of its recurrence two years after its removal.

The operation of thyreotomy has frequently been performed for many morbid affections involving the vocal cords or the structure above and below them, such as papillomata, myxomata, fibromata, carcinomata, cicatricial stenosis, removal of foreign bodies, and lately for tuberculosis.

In the study of the statistics of the operation of thyreotomy, especially those tabulated by Bruns and Karl Becker, we find that of two hundred and fourteen cases in which thyreotomy was done for various conditions only eleven succumbed to effects which could be attributed directly to the operation itself; these were pyæmia (two), diphtheria (three), collapse (one), hæmorrhage producing pulmonary œdema (five), and bronchitis (one). So, as far as the operation itself is concerned, it is one therefore practically devoid of danger, and if there is any danger, hæmorrhage into the trachea at the time of the operation is the one to be feared.

In the case just cited this was avoided and the use of a tampon done away with by carefully securing all the bleeding points before the larynx was opened. As regards the final result, this entirely depends upon the cause which renders the operation necessary, "while its effect upon the

voice entirely depends upon the seat of the lesion and on its special character" (Cohen).

"Some very conflicting opinions have been expressed with regard to thyreotomy, some asserting that it is an operation free from danger and threatening life, while others maintain the opposite. Probably Professor Virchow's opinion is correct—namely, that thyreotomy, performed in an otherwise healthy larynx, is an operation free from risk and danger" (Beverly, *British Medical Journal*, 1891, ii).

The late Sir Morell Mackenzie did not think ample room was obtained by division of the thyroid, and preferred to do tracheotomy and then remove *per vias naturales*, holding that the space obtained by thyreotomy was smaller than the glottis (Holmes).

Wagner believes that the danger to life from the operation itself is very slight. Wagner, in a paper on thyreotomy, states that "this operation should only be resorted to for the relief of urgent dyspnoea arising from laryngeal obstruction caused by the presence of benign neoplasms or a foreign body, and in which the operation *per vias naturales* is inadvisable or impracticable. In cases of malignant disease it should only be performed where there is a reasonable possibility of eradicating the disease thereby."

Regarding the operation of thyreotomy for tuberculosis, opinions are divided; according to Becker, relief is always given even when death is merely postponed; whereas A. Bergmann warns against operative interference in tuberculosis of the larynx by laryngo-fissure, scraping, and cauterization; he had signally failed in so treating two selected cases (Solis-Cohen in Sajous's *Annual*, 1890 and 1891).

According to Wagner, the operation in tuberculosis is unjustifiable, and death, which is inevitable in these cases, is likely to be hastened by it.

The reasons for adopting the measure I did in this case rather than removing the growth *per vias naturales* are these:

1. The appearance of the tumor, as seen by the laryngoscope, and the history of its rapid development led me to believe that I had to deal with a tumor most probably malignant in its nature, and that its thorough extirpation could not be carried out satisfactorily except by thyreotomy.

2. It was impossible to tell by laryngoscopic examination whether the tumor was limited entirely to the larynx itself or had an attachment by a broad base to the anterior wall of the trachea.

3. From the hyperæmic appearance which the tumor had, it was more than probable that removal of it piecemeal *per vias naturales* would have been attended with trouble—some hæmorrhage into the trachea.

4. Presuming the growth to be malignant, its removal *per vias naturales* might have led to self-inoculation of other structures within the larynx through slight abrasion of the mucous membrane caused by operative interference.

5. To insure its thorough removal as far as possible *per vias naturales* would have entailed a long time in the training of the patient, which, under the then existing circum-

stances (pregnancy), might have been more trying and tedious than the operation then performed.

NOTE.—In May last I again saw this patient. There was absolutely no evidence of any recurrence, and the voice was perfectly clear and the patient's health very good.—H. S. B.

THE PATHOLOGY AND METHODS OF TREATMENT OF
HYPERTROPHIC AND ATROPHIC RHINITIS
(CHRONIC NASAL CATARRH),
WITH SPECIAL REFERENCE TO
THE WORK OF THE GENERAL PRACTITIONER.*

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A LARGE number of physicians exhibit indifference as regards the study of the pathology of the nasal and nasopharyngeal structures, the technique of examination for the purpose of making a proper diagnosis, and the advanced methods of treatment of their diseases.

Considering the frequent occurrence of nasal or nasopharyngeal malformations and diseases, which in the majority of cases cause the afflicted individual quite an amount of distress, and which could be easily corrected and cured if they would be recognized by the physician who is consulted for the relief of certain direct or indirect symptoms arising therefrom, such a state of indifference on the part of a number of physicians is hardly justifiable.

I shall principally confine myself here to the two affections which are the most frequent in occurrence, very distressing to the patient, and can be most easily recognized and treated—viz., *hypertrophic* and *atrophic rhinitis*, or, as they are often called in short, *chronic nasal catarrh*.

As a rule, the nose is regarded, as fittingly described by Dr. E. J. Bermingham, of Brooklyn (*vide New York Med. Jour.*, i, 1893), as the organ of smell and catarrh. It is also known that it is at times subject to polypoid growths and the like. A patient suffering from one kind or another of nasal or naso-pharyngeal trouble is, usually, without any attempts at an examination, advised to use salt and water, to be snuffed up or to be used by means of the nasal douche. Sometimes he is given some powder to be snuffed or some ointment to be applied into the anterior nares. There are also cases on record where patients have been advised to avoid a specialist, that catarrh is inevitable in such a climate as ours, and the like.

Now, some will think these statements exaggerated. To show, however, that this is not at all the case, I simply ask, *How many physicians make a thorough anterior and posterior rhinoscopic examination in patients with nasal troubles who apply to them for treatment, either for the primary nasal affection or disturbances depending directly or indirectly on them?*

In order to treat a nasal or naso-pharyngeal affection successfully it must be properly diagnosticated. To diagnosticate a vaginal, uterine, rectal, or cardiac disease, we have to make a thorough examination of the parts with the

proper instruments. The same procedure is, therefore, necessary in attempting to make out any pathological process in the nose or nasopharynx, and such an examination is the more important here because we can not gain much information by our sense of touch.

It would therefore be desirable that every physician should be familiar with *anterior* and *posterior rhinoscopy*. It only requires a few inexpensive instruments and a few weeks of practice. A thorough examination of the nose and nasopharynx could then be made in every case; a deflected septum, hypertrophied turbinated bodies, adenoid vegetations, exostoses, polypi, enchondromata, etc., could be promptly recognized and referred to a rhinologist, who, after having restored the normal caliber of the nasal fossæ, could refer the case back to the corresponding physician for further proper treatment. Many a patient would thus be afforded prompter relief and physicians would not be obliged to feel embarrassed after their patients had consulted a rhinologist on their own account, and had been told that some of the above-mentioned pathological conditions of the mucous, cartilaginous, or bony structures of the nose or nasopharynx were the cause of all their trouble, and which had never been recognized by them.

Hypertrophic Rhinitis.—This affection is also known under the terms of hypertrophy of the turbinated bones or bodies, hypertrophic nasal catarrh, and hypertrophic ozæna.

It constitutes an hypertrophy of the nasal mucous membrane, the result of chronic congestion, accompanying frequent attacks of *acute* or an existing *chronic* rhinitis. The development of an hypertrophic rhinitis is often aided and hastened by the employment of improper methods of treatment of cases of simple chronic nasal catarrh—*e. g.*, the use of irritating snuffs, strong solutions of astringents, especially of nitrate of silver, and too frequent and too forcible application of the douche or similar apparatus. In a few cases it seems to arise idiopathically, like other hypertrophies.

The seat of predilection of the pathological changes occurring in hypertrophic rhinitis is the turbinated bodies, their peculiar anatomical structure especially favoring the development of superabundant tissue.

To demonstrate the hypertrophic changes there clearly, it will be well to review briefly the anatomy of these parts.

The turbinated bodies consist of the turbinated bones, covered by their mucous membrane and epithelium. The mucous membrane is very richly supplied with blood-vessels, especially with veins, and is quite elastic. It therefore has erectile qualities, and together with the submucous layers of tissues forms veritable "corpora cavernosa," becoming erect when filled with blood and collapsing after being emptied.

The walls of these minute venous sinuses become thickened through hypertrophy and lose their elasticity. Beneath the mucous membrane a hyperplasia of connective tissue takes place. We have now an increased amount of tissues *beneath* the mucous membrane; the mucous membrane itself becomes thickened, and the network of minute venous sinuses, having lost their elasticity, remain distended. We have now a pathological condition which is termed *hy-*

* Read before the New Hampshire Medical Society, June, 1894.

hypertrophic rhinitis. Very frequently the *sæptum* also participates in these changes as regards its mucous membrane. The hypertrophic state is, as a rule, unequally distributed over the surface of the turbinated bodies and *sæptum*, giving the surfaces of these structures an uneven outline.

Hypertrophic conditions in the anterior portion of the nose are called *anterior hypertrophies*; those in the posterior portion, *posterior hypertrophies*.

In cases where the turbinated bodies and the *sæptum* in their posterior portions are involved, entire stenosis of the nasal canal of one or both sides may result.

Hypertrophic changes in the nose, as a rule, progress slowly. Therefore it is important to treat properly and promptly a simple chronic rhinitis before it reaches a state of hypertrophy.

The most important symptom complained of by the patient is obstruction in nasal respiration through one or both nares. The hypertrophied mucous membrane is more sensitive to atmospheric and other mechanical or irritative influences. The erectile part of the turbinated bodies can not as readily, or at times not at all, collapse, and as a result, distended with blood, together with the submucous hyperplastic tissue, they occlude one or both nasal cavities. If this condition is of a severe degree and constant, the patient acquires the habit of breathing through the mouth.

The physiological functions of the nose—to warm and purify the inspired air—is thus suspended. This may be, and often is, the starting point of pharyngeal, laryngeal, and pulmonary affections. The voice acquires a so-called “nasal twang” from interference with the nasal resonance. The face often exhibits an air of stupidity on account of the constantly open mouth. The openings of the tear-ducts and Eustachian tubes may also be occluded, thus causing trouble in the eye or ear. The sense of smell is impaired. Periodical frontal and supraorbital headaches are often complained of. The nasal secretion is increased, often of a yellow color and thick consistence, mixed with scabs, and of a peculiar, disagreeable odor, which latter also taints the breath of the patient. The increased secretions, which can not find a sufficient outlet by the anterior nares, flow back and down through the posterior nares, irritating the pharynx and larynx, producing a continuous hawking.

Viewed by anterior rhinoscopy, the mucous membrane of the anterior portions of the *sæptum* and of the inferior turbinated bones is either seen to be of normal color or reddened. The enlarged inferior turbinated and a part of the middle turbinated bodies can be seen to reach into the lumen of the nasal canal, at times only slightly, at other times more, until in extreme cases it will be seen to approach the *sæptum*, inducing complete stenosis. The middle and superior turbinated can, as a rule, only be examined by means of *posterior rhinoscopy*.

The hypertrophied turbinated bodies may also be of a purplish or whitish polypoid degeneration. Their consistence, etc., may easily be determined by touching them gently with a probe. They bleed very easily.

Cartilaginous or bony spurs of the *sæptum* and hypertrophy of the glandular tissue of the vault of the pharynx

(adenoid vegetations) often accompany hypertrophic rhinitis.*

Now, as to the treatment of hypertrophic rhinitis.

Cleanliness is the foundation upon which rests all success in modern medicine and surgery. It is also of paramount importance in any and all methods of treatment of the affection under consideration.

The surface of the lining mucous membrane of the nose and nasopharynx must be thoroughly cleansed of the mucus, muco-pus, and scabs which continuously collect on it in this affection. No application—antiseptic, astringent, or otherwise—can be of any use unless it be applied to a perfectly clean mucous membrane. Which is the best way of cleansing the mucous membrane of the nose in hypertrophic nasal catarrh?

All douches, syringes, atomizers, etc., which place the force of the stream under the control of the patient are to be abandoned. They will do a great deal of harm. A simple douche, which makes the solution flow in and out slowly, and *without any force*, is to be selected. These indications are best met by Dr. E. J. Bermingham's douche.†



Bermingham's nasal douche.

He gives (*loc. cit.*) the following directions for its use: “Having warmed the cleansing solution by placing an ounce phial containing it standing in a tumblerful of hot water for a few minutes, fill the douche, which has a capacity of about seven drachms—generally enough for a thorough cleansing. The funnel should now be closed with the tip of the index finger and the nozzle inserted into the nostril so that it closes the latter completely. Throw the head slightly backward, raise the finger closing the funnel, and allow the solution to enter the nostril and flow through it to the throat. When the solution is felt in the throat the flow may be checked by simply closing the funnel with the finger tip. The solution should be kept in contact with the parts for two minutes before clearing the nose and throat, and it should be used in each nostril. Breathe through the mouth while using the douche.”

Any other apparatus which throws any solution into the nose with force will by stimulation increase the hypertrophy, and may also cause serious trouble in the ear through forcible entrance of fluid into the middle ear by the pharyngeal opening of the Eustachian tubes.

The cleansing solution itself should be alkaline, antiseptic, and deodorizing. It should preferably be used warm. A simple and effective solution is the following: $\mathcal{R}$ Sodii

* Sajous. *Diseases of the Nose and Throat.*

† Made by Kress & Owen, 354 Pearl Street, New York.

bicarb., gr. xxx; listerine, $\frac{1}{2}$ ss.; aquæ, q. s. ad $\frac{1}{2}$ iv. Seiler's alkaline and antiseptic tablets are very convenient to use. Formula: Sod. bicarb., borax, sodium benzoate, sodium salicylate, eucalyptol, thymol, menthol, oil of wintergreen. A fresh solution can always and readily be prepared. One tablet dissolved in two ounces of water is the proper solution. It may be made stronger or weaker. The nasal cavities should be washed out at least three times a day; more frequently if necessary.*

This treatment alone, if carried out conscientiously, will in many cases of simple chronic rhinitis, or in cases of slight hypertrophic conditions, yield very satisfactory results. Cases which present considerable hypertrophy of the turbinated bodies and the septum, adenoid vegetations, septal bony or cartilaginous spurs, or a considerably deflected septum, should as soon as recognized be transferred to a competent rhinologist for operative treatment, who will restore the normal caliber of the nasal fossæ, and then may refer back the case to the corresponding physician for further antiseptic, astringent, or other treatment, as the case may demand.

The pathological conditions referred to in hypertrophic rhinitis are, as a rule, remedied in the following operative manner by the rhinologist.

Hypertrophies of the turbinated bodies are made to shrink by the application of chromic, nitric, or glacial acetic acid; by the application of the thermo-cautery; or, if of a soft polypoid degeneration, they are removed by the cold wire or thermo-cautery snare, as is also done with polypi.

Bony or cartilaginous spurs of the septum are removed by the nasal saw, by burrs and electric motor, or by an extra strong probe-pointed bistoury.

Deviated nasal septa are straightened by the various methods, best suited to the individual cases, which are at present in vogue in nasal surgery.

Adenoid vegetations in the vault of the pharynx are removed either by post-nasal cutting forceps or by the more radical and more satisfactory measure—the sharp post-nasal curette.

Any constitutional disturbance (anæmia, scrofulosis, constipation, etc.) must, of course, be met by the appropriate internal remedies. Faulty hygienic conditions also should claim our attention.

If hypertrophic rhinitis is, in due time, properly treated by the medical and surgical means referred to above, the majority of cases, no matter how severe, will improve greatly or be cured. It requires to accomplish these satisfactory results perseverance on the part of the physician as well as the patient.

Cases of hypertrophic rhinitis which are either improperly treated or left to themselves will sometimes undergo involution during general senile atrophy, remain stationary for life, or frequently merge into that most disagreeable nasal affection known as *atrophic rhinitis* (or dry catarrh, atrophic catarrh, foetid catarrh, ozæna). We mean

by this term atrophy of the mucous membrane of the nasal fossæ.

Other ætiological factors, beside hypertrophic rhinitis, are a dry and hot atmosphere, inhalation of tobacco or other smokes, and any other causes favoring accumulation and desiccation of the natural discharges.

This affection may be unilateral or bilateral.

When *atrophic rhinitis* occurs as a result of hypertrophic rhinitis, the pressure exerted by the adventitious cellular tissue upon the glands and blood-vessels causes interference with or destruction of the former and gradual absorption of the latter. As the destruction of the glandular elements progresses, the surface of the membrane becomes more and more deprived of the lubricating action of its secretion and is thus exposed to the direct action of the irritating agents which now remain in contact with it. As a consequence, superficial desiccation occurs, pressure is exerted upon the layers beneath, and this, coupled with the diminished nutrition occurring as a result of the decreased blood supply, sooner or later produces absorption of the greater part of the membrane, including the corpora cavernosa, and frequently the turbinated bones.

Those glands which are principally affected by the external irritant become engorged, and their apertures are the seat of minute abscesses. Owing to their great number and close proximity, the latter form suppurative areas over which the purulent discharges accumulate into masses more or less thick. The contact of these masses soon destroys the underlying ciliated epithelium, the cells of which are shed abundantly, and the discharges, not being softened by mucus or propelled by the to-and-fro motion of the cilia, remain over the seat of their production, to become dry and decomposed crusts by the evaporation of their watery constituents, until they are of sufficient thickness to be loosened by the exhaled current of air and discharged (Sajous).

The symptoms of *atrophic rhinitis* are, as regards any inconvenience or pain on the part of the patient, in most cases negative, nasal respiration being perfect. In chronic cases there is a feeling of great dryness in the nasal cavities and nasopharynx. Frontal headache is at times complained of, aggravated by cold or dust, the remains of the dry membrane being very sensitive. The sense of smell is more or less impaired, at times completely wanting, through the involvement of the peripheral branches of the olfactory nerves. A complete loss of the sense of smell is termed *anosmia*.

The most important symptom which leads the patient to apply for treatment is the foetid character of his breath. The foetid odor of the latter varies from a slight impurity to an unsupportable odor, rendering such unfortunate victims of this trouble in certain instances almost unfit for social communication. Thin or thick, yellowish-green and gray crusts, sometimes tinged with blood and of very disagreeable odor, are discharged through the anterior or posterior nares.

On anterior rhinoscopy we find a condition *exactly opposite to that found in hypertrophic rhinitis*. We observe an abnormal spaciousness of one or both nasal cavities, so that

* Kress & Owen, of New York city, also manufacture glyco-thymol, the formula of which is similar to that of Seiler's tablets, with glycerin and other solvents. Dr. Bermingham speaks in high terms of it.

we can look straight through into the pharynx and see the wall of the latter.

On posterior rhinoscopy we observe the mucous membrane of the nasal cavities, nasopharynx, and often of the pharynx itself, to be, as a rule, of a normal color, but it appears to be glazed and parched. Dry scabs are seen to adhere throughout the course of these cavities, which are removed only with difficulty.

The prognosis of atrophic rhinitis is, if the disease is properly and perseveringly attended to, a fairly good one.

In the treatment of atrophic rhinitis the most important step is to free the mucous membrane from the dry, fœtid crusts and to keep it clean. The next step of importance in the treatment is to make stimulating applications by means of a cotton-tipped probe dipped into the selected preparation and by the atomizer. A good antiseptic and deodorizant cleansing solution is: $\mathcal{R}$ Sodii bicarb., gr. xx; listerine, $\mathfrak{z}$ ss.; aquæ, q. s. ad $\mathfrak{z}$ ij (or a solution of Seiler's tablet may be also used here). The atomizer is, unlike what is true of *hypertrophic rhinitis*, to be preferred in *atrophic rhinitis* to the douche, on account of the stimulation imparted by the force of the spray to the atrophied mucous membrane.

Among the stimulating applications the following may be mentioned (always to be applied after thorough cleansing): $\mathcal{R}$ Tinctura iod., glycerini, ââ partes æqual.; to be applied thoroughly over the mucous membrane with the cotton-tipped probe. A five-per-cent. or two-per-cent. preparation of kero-lin-ichthyol (a bland petroleum oil of the paraffin variety and ichthyol) is another good application. This latter preparation is extensively and with very good results used at the Manhattan Eye and Ear Hospital (nose and throat department) in New York.

Attention to hygiene and constitutional conditions is of the utmost importance.

Now a word as regards the use of cocaine as an anæsthetic in nasal surgery. It is the nasal anæsthetic *par excellence*. Somewhat stronger solutions are required here than when it is used in the eye. A four-, six-, or eight-per-cent. solution is of about the proper strength, according to the amount and degree of manipulation required during an operation. It is also advantageously used to diagnose between an erectile congestion and true hypertrophy of the turbinated bodies. A plug of cotton saturated with a four- or six-per-cent. solution of cocaine is introduced into one or both nostrils, as may be required, and left there eight or ten minutes. If on removal the previously enlarged structures have shrunk considerably, their enlargement was due to *erectile congestion*; if they remain enlarged, we are sure that we have to deal with a genuine *hypertrophy*.

737 TREMONT STREET.

The Chicago College of Physicians and Surgeons.—On the evening of the 8th inst. Dr. G. Frank Lydston began a series of popular lectures on the subjects of The Price of Genius, The Life and Works of Charles Robert Darwin, Social Evolution, and Medical Fads and Fancies. The remaining lectures will be given on December 6th, January 3d, and February 7th.

A PLEA FOR MUSICAL TERMS IN PHYSICAL DIAGNOSIS.*

By J. H. TYNDALE, M. D.,
LINCOLN, NEB.

FROM time to time spasmodic efforts are made to improve the nomenclature of physical diagnosis as applied to lungs and heart. The time-honored terms employed by Laennec and Skoda—both of whom have been dead some time—and handed down to our generation are a fit subject for hilarity among musicians. In attempting to outline a nomenclature in conformity with established musical laws, it is not done with any intention of complicating matters, but, on the contrary, to simplify them and clear off old rubbish. With me the necessity of such a change is not a matter of self-persuasion, but of firm conviction.

Many of the sounds heard in auscultation and made manifest by percussion lie within the musical scale. But tones, sounds of any kind, are linked to music, whether they lie above or below the ordinary musical scale, so long as they are audible—appreciable by a normal human ear.

At another time it will be my endeavor to demonstrate that several of the methods now in vogue in examining the lungs and pleuræ are relics of barbarism. This is true of palpation, both as applied to respiration and the voice. Musical tones are not considered with the fingers, but with the ear. To employ such so-called "auxiliary methods" is an evidence of ignorance or timidity, or, more frequently, both combined. In this paper I shall confine myself to the terms employed in auscultation of the respiratory organs.

The text-books on physical diagnosis (faithfully copied from one generation to another) teach us to listen to:

1. *Intensity*.—This represents the amplitude of the sound. In music it is termed "volume." In ascertaining conditions in the lung it is of no value whatever.

2. *Quality*, bronchial and pulmonary, "by which we tell one instrument from another." This statement is false, as will be shown later on.

3. *Pitch*.—Dr. Quimby, of New York, and others have frequently drawn attention to the prime importance of pitch. It is by pitch alone that nice distinctions can be drawn.

4. *Duration of Sound*.—Nothing so clearly shows our ignorance of music as to make this element of pitch a separate feature. Every tyro in music knows that a low pitch is of longer duration than a relatively higher one.

5. *Rhythm*.—The importance of rhythm is taught as one of the elements of sound, instead of as part of the technical execution (the phrasing) of these sounds or tones.

6. *Râles*.—I know of nothing in the domain of medicine that is so unjustly credited with entirely undeserved importance as these self-same râles. This overrating of a secretion accompanying certain conditions is made more difficult by overloading it with names, such as "mucous," "gurgling," and other hoary traditions.

* Read by title at the annual meeting of the American Climatological Association, Washington, May 31, 1894.

From a musical standpoint we have simply to deal with tonality, pitch, rhythm, and tempo. The first two represent the *musical* sound itself. The last two represent the method of execution of this tone: the enunciation as applied to voices and instruments. In other words, tone and its pitch are the factors standing for the sound produced by a voice or instrument; rhythm and tempo represent the technical part—the mechanical execution of the music produced.

Supposing now we adapt ourselves to terms as employed in music and adopt the following simple nomenclature for auscultating respiration:

1. *Tone*.—In the lungs we have only two tones—pulmonary (vesicular) and bronchial (tubular). "Quality," the term now employed, is an individual element of vocal or instrumental tones. Thus a person may have a barytone of a certain volume and range, but the quality of it is strictly individual—e. g., "metallic," "harsh," "melodious," "insinuating," according to the impression conveyed to the listener. Quality in music is the soul's speech, the means through which an artist expresses such feeling and thought as are ordinarily beyond words. Quality of voice is a thing which gives the hearer an idea of the singer's temperament, whether artistic or mechanical—a sympathetic expression or dry technique. In going into detail in connection with a bronchial or pulmonary tone, there can be no valid objection to giving one's impression of some individual quality. But "quality" is not a synonym for tone.

2. *Pitch*.—Both pulmonary and bronchial tones have a certain recognizable pitch which we should think of as a central norm, from which norm the pitch may, from functional or organic changes in the lung, become lower or higher. Silence is the highest kind of pitch, and in the further progress of disease is invariably followed, not preceded, by changes in tone—always from the pulmonary to the bronchial in progressive disease and the reverse during recovery. Now, when we have made ourselves acquainted with a tone and its pitch—with the music produced in the lung—we turn to its execution or technique. This technique consists of rhythm and tempo.

1. *Rhythm* is the characteristic of regular succession; in music, the partition of the piece into equal measures. Under normal conditions in the lung we may speak of it as the unalterable sequence of events. It consists, as we all know, of inspiration, pause, and expiration. Interrupted articulation in music is known as "*staccato*"; continuous or "slurred" expression, as "*legato*." The rhythm of respiration in the norm is continuous (*legato*); that of the heart is interrupted (*staccato*). A change from the continuous to an interrupted rhythm in respiration denotes the earliest beginning of a pathological condition, either functional or organic. An illustration of this is heard in what is known as "cogwheel respiration"—another relic of barbarism.

2. *Tempo* is nothing more nor less than the speed of the rhythm. The tempo of normal rapidity in the lungs is from sixteen to eighteen respirations to the minute—about one to every four seconds. Now, faults in tempo are the most primary and most frequent mistakes made in music.

This does not always materially interfere with the lucid interpretation of a composition, provided rhythm is not interfered with.

On the same principle hurried or much-retarded respiration is of prognostic value only when it breaks up the rhythmical sequence of the respiratory movement; just as accelerated action of the heart is dangerous only when it breaks up the interrupted rhythm (*staccato*) and merges the sounds and the pause into "slurring." In other words, a pathological condition becomes serious only when excessive rapidity or slowness of tempo converts a continuous respiration into an interrupted one in the lung and an interrupted rhythm into a continuous movement in the heart.

The importance attached to râles or rhonchi is another one of those traditions for which Noah and Methuselah should be held responsible. The transudations accompanying functional or organic changes in the lung—whether mucus, pus, or blood—are not the pathological condition itself, nor do they give us any clew to the same. Their removal leaves the same condition to be ascertained by tone, pitch, rhythm, and tempo. Let us simply look upon them as a side show and speak of them as "associated transudates."

What is here proposed is not in the nature of an ideal which can not be realized. We are not dealing with a vague and impracticable theory, but with a simple and readily comprehensible transfer of terms to their proper sphere, which is that of music. So far from complicating matters, it simplifies them and makes them far more readily understood.

In another paper I shall endeavor to show why sounds heard in condensation or excavation of lung tissue (infiltration and cavity) need no designations and definitions other than the ones mentioned above.

LANSING THEATER.

Changes of Address.—Dr. Howard A. Kelly (Baltimore), to No. 1406 Eutaw Place; Dr. Wilbur B. Marple, to No. 20 West Thirty-first Street; Dr. Samuel Wolfe (Philadelphia), to No. 1701 Diamond Street.

The Death of Dr. Charles T. Chase, formerly of the Navy, took place in Brooklyn on Thursday, the 8th inst. He was in his sixty-third year.

The Randall's Island Hospitals.—Dr. Samuel E. Milliken has been appointed a surgeon to the hospitals.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending November 10, 1894:*

CORDEIRO, F. J. B., Passed Assistant Surgeon. Detached from the United States Steamer Adams, ordered home, and granted two months leave of absence.

STOWE, L. H., Assistant Surgeon. Ordered for examination preliminary to promotion.

CLARKE, J. H., Medical Director, WHITE, C. H., Medical Inspector, STREETS, T. H., Surgeon, and RUSSELL, A. C. H., Passed Assistant Surgeon. Ordered as a board at the Naval Laboratory, Brooklyn, N. Y., to examine candidates for admission to the medical corps of the navy, and for promotion in the corps.

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THE TREATMENT OF BLEEDING FROM THE NOSE.

THE *Revue internationale de rhinologie, otologie et laryngologie* for August 10th publishes an article by Dr. Baumgarten, of Budapest, in which he recommends the following methods in the treatment of epistaxis: A thorough examination of the inside of the nose must be made in order to discover where the bleeding comes from. Usually there are to be seen at the anterior part of the septum, rarely elsewhere, one or more small superficial vessels of a red color, or else little nodules, erosions, and varicose veins, or a small empty vessel looking blackish on a red background. Occasionally the hæmorrhagic spot is covered with fresh blood-crusts which must be softened and carefully raised in order to expose the appearances referred to. If there is nothing of a suspicious nature to be seen, the patient must be made to blow his nose several times. Another method is to apply a tampon of wet cotton to the septum, and press it more and more firmly against the place until the morbid spot bleeds. Sometimes this brings on at once a more abundant hæmorrhage, which makes the continued application of the tampon necessary before the bleeding spot can be destroyed. For this destruction the author has used the galvanic cautery or chromic acid, sometimes both. He touches the spot with the cautery, which is very painful, and the wire loop can not always be withdrawn while it is still red, so that the eschar is apt to be removed at the same time. Then the small wound bleeds feebly, and it should be cauterized with chromic acid, which, according to Dr. Bresgen, is an excellent hæmostatic. When operating on children or on timid persons Dr. Baumgarten uses the chromic acid only, but the cauterizations must be repeated two or more times after the eschar has fallen or after a fresh hæmorrhage. This treatment must be continued until a plainly visible cicatrix is produced. The patient must be told not to scratch the eschar, to apply a little oil or grease to the spot, to keep quiet, to avoid handling his nose, and not to blow it too hard.

Sometimes sneezing occurs, and this may bring on a hæmorrhage through the eschar. In this case the application must be renewed. A hæmorrhage must always be arrested before cauterizing the spot from which it proceeds. After the source of the hæmorrhage has been ascertained the spot is washed with warm water, the nostril is dilated, and as large a tampon as possible is inserted, against which the wing of the nostril is pressed with the finger. That generally suffices, as nearly all forms of epistaxis have their origin in the forepart of the nasal passages, but the patient must hold himself erect and remain quiet. After this pressure has been continued for a moment the tampon is slowly withdrawn in order to find the origin of the hæmorrhage.

A second tampon is then pressed against the spot. The epistaxis is thus often arrested. Afterward the place may be cauterized with chromic acid. The author has often succeeded in covering the bloody points with a layer of chromic acid by pushing the tampon forward very gently; it can not always be removed immediately, because the wound will bleed anew, and it must be left until the following day or longer if necessary. The author, however, has never had to repeat this for more than three days. He always uses cotton saturated with carbolic acid or some other aseptic cotton, but never iron perchloride, as that only cauterizes.

If the blood runs through the tampon or into the pharynx, the physician should use the same means as those employed in the more serious hæmorrhages. After the part has been washed with warm water, a strip of iodoform gauze as wide as a finger should be pushed as far as the choana; then the entire nasal fossa should be packed with the same material. This may be done easily and without pain; it is better than Belloq's method, and may be accomplished even with a contracted nostril. With regard to Belloq's method, Dr. Baumgarten thinks it is not sufficient and that it may produce accidents to the ear, etc. In one case, that of an old man who was the subject of advanced arteriosclerosis, Belloq's tampon was inserted, and several tampons were added anteriorly. Two physicians had tried to stop the bleeding, but their efforts had been of no avail. The velum of the palate had been cut, and it was ulcerated and œdematous. The author, who was called in, immediately removed everything, and while the bleeding continued he applied strips of iodoform gauze, and two days afterward the hæmorrhage was arrested.

As a palliative method, or in cases where the anterior tampon is not efficacious, or where the patient is taking care of himself pending the physician's arrival, the author recommends the use of warm water, which is a better hæmostatic than cold water or ice water, or else lemon juice. A solution of iron perchloride is an excellent hæmostatic, he says, but it cauterizes the neighboring region and prevents the physician from distinguishing the diseased spot.

When the hæmorrhage finally stops, and the bleeding points are found, they must be cauterized. There is no harm in cauterizing somewhat around the bleeding spot; on the contrary, the indications are to burn the entire vicinity. In cases of arteriosclerosis the author has been obliged to cauterize the entire pituitary surface as far as the choana as the iodoformed strips were removed one after another. These cauterizations should be repeated several times, and every suspected place covered anew with chromic acid. These tampons of iodoform gauze are not disagreeable to the patient, and they may be left for two days. Before removing them the nose should be washed with warm water, and the strips of gauze should be drawn away very gently in order to prevent the hæmorrhage from breaking out again, and any suspected places immediately cauterized, even at the risk of touching a healthy spot. The patient may take wine and iron, but should avoid coffee, tea, and effervescing drinks. All internal medicines are useless and harmful.

MINOR PARAGRAPHS.

THE CÆSAREAN OPERATION AFTER VERSION AND DECAPITATION.

In the *Nouvelles archives d'obstétrique et de gynécologie* for October we find an abstract of an article published in the *Ugeskrift for Lager*, of Copenhagen. It describes a case of labor in which the patient was a primipara, forty years old. The head presented, and was movable and situated high. The umbilical cord and one hand, together with a forearm, had prolapsed. The pelvis was contracted. Version and extraction were performed with the patient under the influence of chloroform. The body was disengaged, but not the head. As the neck was felt to be torn, the separation of the head from the trunk was completed. Then the Cæsarean operation was performed for the extraction of the head, which was now tightly engaged at the superior strait, whence it was dislodged with two fingers introduced through the uterine orifice. The woman got well, but only after a very long time, during which she had fever and peritonitis.

THE ACADEMY OF MEDICINE'S ANNOUNCEMENTS.

THE inaccuracies that are to be found as a general thing in the announcement cards issued by the New York Academy of Medicine seem to be on the increase. On the last one that has reached us we notice the following: "Hemorrhagic," "discussion," "resumé," "each resident fellow . . . they paying," etc., and "antiflexion." It is simply disgraceful for a learned body to circulate such a document.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending November 13, 1894:

DISEASES.	Week ending Nov. 6.		Week ending Nov. 13.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	25	6	24	4
Scarlet fever.....	39	6	59	6
Cerebro-spinal meningitis..	0	0	3	2
Measles.....	28	4	41	1
Diphtheria.....	98	36	163	31
Small-pox.....	1	2	36	0
Tuberculosis.....	75	75	126	104

The New York Academy of Medicine.—The programme for the last meeting, on Thursday evening, the 15th inst., included a paper entitled Further Observations on the Treatment of Malignant Tumors with the Toxines of Erysipelas and Bacillus Prodigiosus, by Dr. William B. Coley; and the Wesley M. Carpenter Lecture, on Important Facts relative to Malignant Disease, by Dr. Joseph D. Bryant.

At the anniversary meeting, to be held on Wednesday evening, the 28th inst., Dr. Charles L. Dana will deliver the annual discourse.

At the next meeting of the section in Ophthalmology and Otology, on Monday evening, the 19th inst., papers are to be read as follows: On the Probable Hæmorrhagic Origin of the Striated Affections of the Retina, by Dr. Ward A. Holden; The Combined *versus* the Simple Extraction of Cataract, by Dr. F. W. Ring; and The Development of a New Point of Fixation in the Eye, by Dr. F. Van Fleet.

At the next meeting of the Section in General Medicine, on

Tuesday evening, the 20th inst., Dr. Thomas H. Southworth will read a paper entitled A Résumé of the Subject of Biliary Calculi.

At the next meeting of the Section in Obstetrics and Gynæcology, on Thursday evening, the 22d inst., the following-named papers are to be read: Entanglements and Shortening of the Umbilical Cord, by Dr. T. J. McGillicuddy; and The Surgical Treatment of Antelexion of the Uterus, by Dr. Charles Bell White.

At the next meeting of the Section in Laryngology and Rhinology, on Wednesday evening, the 28th inst., papers are to be read as follows: Rheumatism and Allied Diseases of the Pharynx and Larynx, by Dr. W. Freudenthal; and Perforations of the Nasal Sæptum, by Dr. A. Rupp.

The University of Southern California.—Dr. Walter Lindley, who has resumed practice in Los Angeles after an absence of three years, has been elected to the chair of gynæcology in the medical school.

Society Meetings for the Coming Week:

MONDAY, *November 19th*: New York Academy of Medicine (Section in Ophthalmology and Otology); New York County Medical Association; Chicago Medical Society.

TUESDAY, *November 20th*: Mississippi Valley Medical Association (first day—Hot Springs); New York Academy of Medicine (Section in General Medicine); New York Obstetrical Society (private); Ogdensburgh, N. Y., Medical Association; Syracuse, N. Y., Academy of Medicine; Medical Societies of the Counties of Kings and Westchester, N. Y.; Baltimore Academy of Medicine.

WEDNESDAY, *November 21st*: Mississippi Valley Medical Association (second day); Medico-legal Society, New York; Northwestern Medical and Surgical Society of New York (private); New York Society for the Relief of Widows and Orphans of Medical Men (annual); New Jersey Academy of Medicine (Newark).

THURSDAY, *November 22d*: Mississippi Valley Medical Association (third day); New York Academy of Medicine (Section in Obstetrics and Gynæcology); Brooklyn Surgical Society; New Bedford, Mass., Society for Medical Improvement (private).

FRIDAY, *November 23d*: Mississippi Valley Medical Association (fourth day); Baltimore Clinical Society; Chicago Gynæcological Society.

SATURDAY, *November 24th*: New York Medical and Surgical Society (private).

Proceedings of Societies.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Meeting of September 26, 1894.

The President, Dr. DE FOREST WILLARD, in the Chair.

(Concluded from page 540.)

Ice-cold Applications in Acute Pneumonia.—Dr. THOMAS J. MAYS read a paper with this title in which he said that, while the use of cold applications in the treatment of pneumonia was by no means a new procedure, he was of the opinion that it had not yet received the consideration and extensive introduction which it merited, and in saying what he had to say he trusted that he was loyal to that spirit which prompted one to conservatism in the commendation of any curative measure

until it had stood the test of experience. When, however, one had observed the magic changes which followed in the pneumonic condition under the beneficent influence of cold locally applied, as had been done by others as well as by himself on numerous occasions, he felt that this method had passed the experimental stage, and he therefore hoped that he would be pardoned for appearing obtrusive when he again directed attention to this subject.

Cold had been employed in the treatment of pneumonia for various purposes and in various ways. Jürgensen believed that the chief danger in this disease arose from the high fever, which finally led to cardiac failure. He referred to the experiments of Zenker and others to show that high fever was detrimental to the fibers of the heart-muscle and to those of the voluntary muscles. He therefore recommended cold, principally with a view of reducing the pyrexia. It was a question, however, said the speaker, whether a high temperature of itself was more fatal in pneumonia than a low one; but this was a point which would be referred to later on. So far as he knew, Niemeyer had been the first to apply cold immediately to the chest for the purpose of reducing the activity of the local inflammatory process in the lungs.

If the practitioner believed in the constitutional nature of the disease, and especially if he thought that the high fever endangered the integrity of the heart-muscle, his principal aim was to reduce the fever, and to accomplish this he immersed his patient periodically in a cold bath, which was done by Jürgensen and others. If he held that the local trouble in the lung was responsible for the high fever, and that this constituted the vulnerable point in the disease, he would pay less attention to the general condition and make his cold applications directly over the inflamed lung.

The author believed that much of the ill-success which had followed the use of cold in pneumonia was attributable to the fact that it had been employed according to the first method. The pyrexia of pneumonia was not the same as that of typhoid fever, or at least it did not yield to cold in the same way as that of the latter did. The former was best subdued by cold applied directly over the affected lung as well as to the head, and general baths or spongings did not seem to be essentially indicated, and if the latter were applied they did not keep the fever down for any long period. If the fever and a great deal of the constitutional disturbance of pneumonia depended on the inflammatory process in the lung, then an abatement of the pulmonary disorder would strike at the very root of the difficulty, and it was clear, too, that the measure which accomplished this must be applied continuously and persistently, and not, as in typhoid fever, at stated intervals. Moreover, it was a hazardous procedure to subject a pneumonic patient to the bodily changes and cardiac strain which were incidental to the giving of a general bath. It must be remembered that the heart was always implicated in pneumonia, and was therefore a weak and easily assailed organ.

How, then, was the cold to be applied, and how long must it be continued? The affected area must be surrounded with ice contained in bags which were wrapped in towels. If the disease was confined to the front base on one side, one good-sized bag would suffice; but if the exudation extended to the side and back, then at least one more bag must be applied laterally and as far back as possible. If the affection was extensive, as many ice bags as were necessary to cover the whole area should be put on. The morbid process must be watched, for it was very apt to migrate from one spot in the chest to another, and if it did it must be followed up with the ice bag.

The length of time for which cold was to be used must, in most cases, be decided by the amount of fever which was pres-

ent. If the temperature fell to or near the normal point, and showed a tendency to remain there, then the ice might gradually be removed. It was best, however, not to be in too much haste in withdrawing the cold, for, frequently, before this was off very long the temperature suddenly rose again. If this took place, and the temperature remained high after the ice was re-applied for some time, it was a possible indication that the inflammation had invaded a new field, and was not active in the old one. This had happened several times in the speaker's experience.

It must always be borne in mind, however, that the ice was not solely employed for the purpose of reducing the fever, but rather with the object of circumventing the exudative process and of hastening resolution in the affected part. There might be very little fever present in some cases of pneumonia, as in the aged, yet the destructive changes were going on in the lungs at a rapid rate. In senile and latent pneumonia the activity with which the ice was employed must be governed entirely by the impression which was made on the pulmonary disintegration. This must be the objective point and not the temperature.

With regard to the fever in pneumonia as a prognostic sign, Dr. Mays said that, although a temperature and 105° F. was generally regarded as more dangerous in the adult than one of 102°, he really believed that this was an error. When the fever was excessive, as when it rose to 107° or 108°, every one admitted that this was almost necessarily fatal; but it must also be granted that a decidedly low pneumonic temperature, as, for example, 95° or 96°, was equally fatal. The safety point, if such there was, lay somewhere between these extremes; and within a certain range he thought we could look upon this fever as an indication of the degree of vital resistance which was present in the body. If it remained between 104° and 105°, the prognosis was good, provided other conditions were equal; but if it was either very high or very low it was evidence of serious exhaustion and of vital inadequacy to cope with the destructive forces.

Dr. Mays believed that the local action of cold on the pneumonic process consisted in its powerful influence on the pulmonary capillaries and in its ability to resolve the exudate and infiltrate. It was well known that the most apparent lesion in acute pneumonia was an enormous distention of the pulmonary capillaries, with partial or complete stasis of the blood in these vessels, exudation of fluid constituents of the blood, proliferation and accumulation of epithelial cells, and diapedesis of white and red blood-cells in the alveoli and bronchioles. Now it was well known that cold had the power of contracting blood-vessels, and from this action it could be understood why it should be of benefit in pneumonia. But how it could dissolve an exudate or an infiltration was not so clear. That it accomplished this he was firmly convinced. For example, there was a pneumonic area which was wholly devoid of vesicular sounds, and had a flat percussion note with bronchial breathing, indicating without doubt that the process had passed beyond the stage of engorgement and into that of exudation or of infiltration, yet the application of ice to this spot would in a remarkably short time develop a new group of physical signs, such as crepitation, reappearance of the vesicular murmur, diminution of flatness, etc. This had not only been observed by himself over and over again, but was also dwelt on by Dr. Lees, who had had an extensive experience in the use of ice in this disease, when he said (*Lancet*, November 9, 1889, p. 894): "In many cases I noticed a striking arrest in the development of the physical signs," and the ice bag "distinctly tends to repress the inflammatory process in the lung."

Was the ice treatment applicable in croupous or in acute

catarrhal pneumonia, or in both forms of the disease? In his earlier experience he had been inclined to believe that it had only been adapted to the treatment of the croupous variety, but further familiarity with the measure had taught him its use in the acute catarrhal form. He had also given it a trial in chronic broncho-pneumonia and in pulmonary phthisis, but with rather indifferent results, if not with positive harm in some cases. He admitted, however, that in several cases of this kind it had seemed to do exceedingly well. It must be borne in mind, too, that the ice bag had been strongly recommended by the late Dr. Brehmer and by Dr. Detwiler and others in the treatment of chronic lung trouble, but with such excellent testimony in its favor it was very probable that many did not yet understand the specific indications for its use.

Besides being useful in croupous pneumonia and in acute catarrhal pneumonia, it also had excellent effects in the capillary bronchitis of infants and in the catarrhal pneumonia which followed measles, diphtheria, and scarlet fever.

It was also desirable in this connection to say something regarding the heart in this disease. From the tenor of much that was said and written on pneumonia at the present time, one received the impression that more was to be feared from cardiac than from pulmonary failure. That the heart's function was impaired no one would deny. Indeed, this could not be otherwise, for the heart and lungs had a common nerve supply and were bound closely together by the pulmonary blood-current, and whatever invalidated one must also affect the other; but he believed that the doctrine that pneumonia became fatal because the heart was unequal to the work of forcing the blood through the engorged lungs, and that all that we were required to do was to stimulate and to goad this organ, unmindful of what was going on in the lungs, was as imaginary in its conception as it was fatal in its practice.

The pulmonary circulation was undoubtedly obstructed, and there was no question but that the heart chafed, fretted, and became seriously embarrassed. Dr. Wilson Fox had said: "One of the most important consequences of pneumonia on the circulation is the occasional occurrence of thrombosis in the pulmonary vessels leading to the affected part. This event, caused in all probability by the retarded circulation in the lung, is not uncommon, and may, by extending to the larger branches of the pulmonary artery, be a source of immediate danger from sudden death, and may also, in great probability, retard the process of resolution and the subsequent convalescence." But was this any reason why we should whip up this organ in the hope that it might perform an impossible task, and stand by and do nothing to alleviate the blockade in front? Was this sound sense or physiological reasoning? No. We must discard this cart-before-the-horse theory, and make strenuous efforts to remove the difficulty in the lung, and in this way liberate the heart from its entangled situation. To accomplish this very end there was no measure more efficacious than ice, and, besides removing the engorgement and even the exudation in the affected lung, it also acted as a powerful stimulant to the heart's function. Indeed, it was chiefly for its serviceable influence on the heart that the ice bag had been recommended in chronic lung diseases by Dr. Brehmer and others.

In conclusion, Dr. Mays said that the external application of cold in typhoid fever had reduced the death-rate from this disease to almost nothing, and he was sure it was not too much to presume that the same remedy, although differently applied, would do the same in the case of pneumonia. His opinion was based on what he had seen in his own practice and in that of others. In his collective report of fifty cases from various sources (see *Medical News*, June 24, 1893) there had been two deaths recorded. Since the publication of this list he had re-

ceived abstracts of seventeen other cases by Dr. Jackson, of Brockville, Ontario, together with seven cases collected by himself, without a death, the histories of which, and of those of Dr. Jackson, he had not had time to write out—making in all seventy-four cases of pneumonia treated with cold applications, and two deaths, or a death-rate of 2·7 per cent.

Now the death-rate from pneumonia, when treated according to the current methods, was variously estimated from twenty to thirty per cent.; hence the results from the cold-water treatment were at least ten times as good as those which were obtained by other methods. In addition to the use of ice, most of the patients had received quinine, acetate-of-ammonium mixture, strychnine, digitalis, morphine occasionally, a nutritious diet, etc.

Dr. ALFRED STENGEL disagreed entirely with Dr. Mays as regarded the heart in pneumonia. He had seen a great deal of pneumonia clinically, but a great deal more pathologically. He had never made a post-mortem in pneumonia in which he had not found some cardiac thrombosis. He had seen the thrombosis of such a character that it was difficult to imagine how any circulation could be carried on during the last moments of life. Of course, in some cases it was difficult to determine whether the thrombi were ante-mortem or post-mortem, but in most cases the manifestly ante-mortem character of the thrombi showed that the heart must have been seriously embarrassed. It was certainly the opinion of most authorities that the heart was seriously embarrassed, and post-mortem experiences would indicate the same thing.

Dr. J. M. ANDERS said that he had been somewhat astonished to hear the reader of the paper take the position that the fever in pneumonia was in all probability the result of the localized inflammation. The localized inflammation might to some extent show the degree of infection, but its presence did not prove that this was not an infectious disease. He inclined to the view that the temperature was an indication of the severity of the type of infection, and not of the severity of the local inflammation.

He was always glad to hear a paper on the use of cold. Cold, whether locally or generally applied, could have but one effect in this disease, and that favorable. If applied locally, as suggested, it would undoubtedly mitigate the local inflammation to some extent, but it could not in an acute infectious disease control the course of the ailment to any extent. He did not believe that there was anything that would entirely control the course and symptoms of pneumonia, simply because it was an acute, infectious, self-limited disease. The local use of cold could not meet all the indications in a case of pneumonia. It was well enough in a mild case, where the respiration was ordinarily good, the temperature was only moderately high, and there were no nervous symptoms, but in a severe case the cold or tepid bath met many more indications and was more efficacious. One of the reasons for the bad respiration was the presence of pain, hence this should be got rid of early. The local application of cold did not influence the respiration of a patient suffering with pneumonia, in his experience; whereas the cool or tepid bath stimulated to deeper respiration and assisted expectoration. Its effect on the nervous system could not be overestimated. It was bad practice, he thought, to rely upon the local use of cold, which met but a single indication, when we had at hand the cool or tepid bath, which met so many and such as were of vastly more importance than the mere combating of local inflammation to the welfare of the patient.

Dr. B. F. STAHL said that he was interested in the use of cold in the treatment of pneumonia, and especially so after considerable experience with the application of baths in the treat-

ment of typhoid fever during the past few months. He recognized that the general application of cold or cool water was productive of rest and of better respiration, and it had a general tranquilizing influence by its reduction of temperature. He was led to expect that its application in pneumonia would be advantageous. He freely admitted, however, that he had had no direct experience in the use of local application of cold in pneumonia. He was ready to try it in any case where it might be applied generally or in the form of a bath, and he believed that we might expect decided advantages from its use.

Dr. LAWRENCE WOLFF had had some experience with the use of cold in pneumonia. Two years before he had employed the cold bath in the treatment of pneumonia in his hospital cases, but the results had not been so favorable as with other methods. He had used the local application of cold with more advantage. Dr. Da Costa had taught many years ago that the ice poultice was one of the best applications, and relieved pain better and stimulated respiration perhaps better than any other application. It had been productive of great good in the speaker's hands.

Dr. JOHN AULDE's object in speaking was rather to make a suggestion to the reader of the paper in order to establish some physiological basis which might be of further value as indicating the effect which cold applications produced in pneumonia. The empirical deduction as to the value of ice in pneumonia seemed to be fairly well founded, and would have been accepted ten or five years ago as very good evidence, but at the present time it seemed to him that something more was demanded. It was hardly worth while nowadays to speak of "vital force," because we could go closer to life than that term would indicate.

The use of the cold bath in typhoid fever had been referred to and its virtues highly lauded. If the cold bath was useful in typhoid fever we should be able to make some observations which would give us some exact idea of the effect which it produced. It would cause surprise if he were to prophesy that within two or three years some one would come before this society and advocate the use of massage in the treatment of pneumonia. It was only a few months since a paper had been published by Dr. Mitchell referring to the wonderful effect of massage in anæmia, showing that it had increased the number of red and white corpuscles.

In pneumonia we had rather a peculiar condition, different from that seen in typhoid fever. Dr. Osler had made some observations on the changes in the blood in this disease. He had found that shortly after the leucocytes began to increase in number there was a defervescence, and a favorable change took place. If the number of leucocytes was large—that is, if a general leucocytosis took place—he was able to say that the patient would recover, even if the temperature had not changed. In typhoid fever there was no leucocytosis, but it seemed probable that in typhoid fever the cold bath was sufficient to produce an artificial leucocytosis. Consequently, if the cold bath was valuable in that disease, it seemed probable that it might produce the same effect in pneumonia, where there was a natural tendency to leucocytosis.

The speaker suggested that the blood should be examined in cases where ice was applied. If it was shown that the effect of cold was to increase the number of leucocytes, we should have a definite basis on which to rest our conclusions.

The PRESIDENT asked Dr. Aulde if Dr. Mitchell had not subsequently explained the increase in the number of corpuscles found, not by an actual increase in the number of blood-discs, but by the fact that corpuscles lurking along the circumference of the vessels were brought into the current by the massage, just as the logs along the banks of a lumbering stream might be forced into the current.

Dr. AULDE said that of course we were not assuming that there was an increase in the number of corpuscles *de novo*. If those out of the current were brought into the stream by the contraction of the vessels it was substantially the same thing. This brought out the leucocytes that were instrumental in maintaining the antiseptic condition of the blood, and, with the contraction of the blood-vessels produced by the cold, the red corpuscles carried oxygen to the tissues and took away carbonic acid and other waste products.

Dr. MAYS remarked that Dr. Aulde seemed to lay great stress on the fact that leucocytes were present in pneumonia. Leucocytosis was present in many conditions, both normal and pathological. Every time we took a drink of beer, or ate a beefsteak, or drank bitters, leucocytogenesis was increased. He did not think that the fact that the number of leucocytes was increased was of any great advantage in the successful treatment of pneumonia.

Dr. Stengel had referred to the presence of thrombi in the pulmonary blood-vessels in pneumonia, and the speaker thought he must have read his own paper to poor advantage if he had not succeeded in making plain his belief in the existence of this condition. Indeed, he had invoked the high authority of Dr. Fox to show this. He thought his intention had been misconceived by Dr. Stengel. The point that he had tried to make clear was that this thrombosis led many practitioners to try to whip up the heart to perform the impossible task of pumping blood through the thrombotic vessels in the lungs. They lost sight of the fact that the foundation of this thrombosis existed primarily in the lungs. They did not pay any attention to its removal in their treatment. The patient died, and they believed that he died because the heart had failed to perform its duty, while in truth death was caused by pulmonary failure.

He knew that Dr. Anders had made use of cold, and he thought that his results had been rather favorable. He spoke of the fever as an indication of the extent of the infection. If by infection he meant the amount of disease in the lung, the speaker could hardly indorse the statement. He had in some of his cases seen high fever where there had been a small amount of infiltration. In one case particularly, seen three years ago, the amount of infiltration at the base of one lung had been so slight as to be detected with difficulty, yet that patient had had a temperature of 106° and 106.5°, and had died in eight days. He had not applied ice in that case, for he had not then known its great value. He wished that he had known, for he believed he could have saved the life of a dear friend. He inferred from what Dr. Anders had said that he had not applied ice assiduously and persistently, for had he done so Dr. Mays thought that he would not have said that he could not control the respiration in pneumonia by the application of cold. He expected in every case where ice was applied to have the temperature fall, the pulse fall, and the respirations fall. He did not think that the use of tepid or even cold baths was of service in pneumonia. The fever in pneumonia was different from that in typhoid fever. It did not yield to general cold as the fever in typhoid did. He thought that if the prejudice against the application of ice could be removed this treatment would be more thoroughly tried, and that it would be found to be the most applicable and most efficacious treatment for pneumonia. This had been not only his experience but also that of others. It had been almost universally successful; in seventy-four cases there had been only two deaths. He did not say that this proportion would be maintained, but the treatment certainly had a great influence upon the local process in the lung. It circumscribed and aborted the exudation in the lung, and this was as much as could be expected from any measure.

Book Notices.

Aseptic Surgical Technique: with Especial Reference to Gynecological Operations, together with Notes on the Technique employed in Certain Supplementary Procedures. By HUNTER ROBB, M. D., Associate in Gynecology, Johns Hopkins University, etc. Illustrated. Philadelphia: J. B. Lippincott Company, 1894. Pp. xvi-9 to 264. [Price, \$2.]

THE excellent work the author of this volume has done in establishing on a scientific basis the disinfection of an operator's hands by permanganate of potassium and oxalic acid, as well as his studies regarding the infection of the drainage-tube tract, have made his reputation for thorough, practical scientific work.

The status of surgery to-day rests upon aseptic technique as much as upon the skill and judgment of a surgeon, and, though the latter qualifications may be extensive, they will be handicapped if the former quality is ignored or is deficient. No one that has witnessed the latter-day operations of even good surgeons will dissent from the author's dictum that it is not unusual to hear a surgeon remark that he always operates under strictly aseptic precautions when his technique, as observed by one trained in bacteriology, is found to be woefully defective.

It is for the purpose of emphasizing the necessity of careful attention to the most minute details that this book has been written. Every operator and every student that witnesses an operation should have constantly in mind this shibboleth of aseptic technique: "While admitting that an infection following an operation must, with our present knowledge, be sometimes attributed to a lowered systemic resistance and to no fault on the part of the operator or his assistants, it must be understood that this is a very rare occurrence, and that in nearly every septic case a rigid analysis of the technique employed will bring to light some sin of omission or commission to account for it."

The author describes at length the principles of sterilization by dry and moist heat, the method of fractional sterilization and that of chemical disinfection, the practical application of the principles of sterilization, and the preparation of the surgeon and his assistants and of the patient. The care and sterilization of instruments and dressings, the means for securing aseptic drainage, and the character of the fluids used for irrigation are fully considered. The operating room and its furnishings, the organization of operations, both in hospitals and in private houses, the post-operative care of the patient, the importance of anæsthesia, and bacteriological, clinical, and pathological examinations, particularly in gynecology, are described.

The book is a most valuable contribution to surgical literature, and we have no doubt it will attain to great popularity.

A Treatise on Appendicitis. By GEORGE R. FOWLER, M. D., Examiner in Surgery, Medical Examining Board of the Regents of the University of the State of New York, etc. Philadelphia: J. B. Lippincott Company, 1894. Pp. 16-17 to 190. [Price, \$2.]

THOSE that followed the author's excellent papers on appendicitis as they were published in the *Annals of Surgery* will appreciate their reappearance in a revised and corrected form in this volume.

The anatomy of the vermiform appendix is first reviewed, and the author lays particular stress on the direction of the normal appendix. The second chapter considers the inflammatory lesions of the appendix. The author divides appendicular disease into four stages, endo-appendicitis, parietal appendicitis,

peri-appendicitis, and para-appendicitis, which he truly states may merge imperceptibly into one another. The third chapter is devoted to the clinical history of acute appendicitis, and the author takes occasion to call attention to the fact that a lowering temperature and lessening pulse-rate are not inconsistent with impending ulceration, perforation of the appendix into an unprotected peritoneal cavity, complete gangrene of the organ, or rupture of an appendicular abscess into the peritoneal cavity. In the fourth chapter, under special types, the author mentions subacute, chronic relapsing, and recurrent appendicitis. The fifth chapter mentions as sequelæ of the disease iliac phlebitis, inflammation with thrombosis of the iliac vein, fatal hæmorrhage, hepatic abscess, purulent pleuritis or pericarditis, and pelvic lumbar and parietal phlegmon. Hepatic abscess is not always due to pylephlebitis, for there is at least one case on record in which the para-appendicitis about an appendix that was turned upward resulted in inflammatory adhesion to the liver, erosion of the capsule of the latter, and superficial hepatic abscess that was treated as a primary abscess of the liver.

In the chapter on ætiology the author inclines to the dictum that infection is not only the principal but also the primary cause of the inflammation.

Dr. J. M. Van Cott, Jr., has contributed an excellent chapter on the pathological anatomy of the appendix.

The author sums up the question of treatment in the sentence: As soon as the diagnosis of progressive appendicitis is assured the abdominal cavity should be opened and the appendix removed.

The volume is a timely contribution to an important topic, and deserves wide popularity.

Practical Urinalysis and Urinary Diagnosis. A Manual for the Use of Physicians, Surgeons, and Students. By CHARLES W. PURDY, M. D., Queen's University, Fellow of the Royal College of Physicians and Surgeons, Kingston, etc. With Numerous Illustrations, including Photo-engravings and Colored Plates. Philadelphia and London: The F. A. Davis Company, 1894. Pp. xiv-357.

THIS is a book which we can recommend in the highest terms. Within its pages we find all the results of modern research in urinalysis clearly and fully described.

The first part of the work is devoted to analysis of urine under the heads of General Considerations, Theories of Secretion and Excretion of Urine, Composition of Normal Urine, Abnormal Urine, Proteids, Carbohydrates, Urinary Sediments, Chemical Sediments, Anatomical Sediments, and Gravel and Calculus. The second part is devoted to urinary diagnosis, under the heads of Diseases of the Urinary Organs and Urinary Disorders, and The Urine in Other Diseases. The author tells us that "this second division of the work—urinary diagnosis—aims at a concise description of the special features of the urine that indicate the presence of special pathological processes in progress in the economy, whether they be local or general, medical or surgical, together with a brief enumeration of the leading clinical symptoms of each disease, and in most cases an epitome of their nature and ætiology."

A chapter on the Examination of Urine for Life Insurance will prove of interest even to those who are not engaged in life-insurance work. The author's views in regard to the significance of albuminuria in examinations for life insurance are of interest. He says: "As a rule, minute quantities of albumin in the urine are less likely to be the result of serious disease of the kidneys in young people than when met with in people beyond middle age. A very considerable percentage of such cases in the young belong to that class which has been termed *physio-*

logical or functional albuminuria, terms that are meant to indicate that the kidneys are not structurally damaged. In such cases, in addition to the fact that the subjects are mostly young, the urine presents certain fairly uniform features—viz., the specific gravity of the urine is usually increased to 1.025 or above; albumin is often absent from the urine on rising in the morning, but appears plainly after exercise, food, or mental excitement; the urine is free from renal casts and significant morphological elements, and the quantity of urea in the urine remains normal. While many such cases continue for years without any marked changes in the urine or in the general health of these subjects, yet a certain proportion of them ultimately develop into serious nephritis. The fact that we possess no positive data by means of which we can with certainty distinguish the special cases of this class which will ultimately terminate unfavorably from those which will pursue a favorable course, and, furthermore, since nephritis is more liable to arise from slighter causes in these cases than ordinarily, it can not be affirmed that these cases are safe risks. It has been suggested by some authorities that these cases might be accepted for limited endowment insurance of, say, five or ten years, but the safer course for the company would be delay for a sufficient time to determine the ultimate course of the case."

"Minute quantities of albumin are often observed in the urine of men at and beyond the middle age, who not only appear perfectly healthy, but who have, as a matter of fact, enjoyed the most typical robust health all their lives. *Among this class will be found the largest number of those cases which have always proved so unprofitable to life-insurance associations, through concealed or overlooked disease of the kidneys.*"

We are somewhat surprised to find that the author considers the presence of sugar in the urine "in a general sense, nowise less serious in its signification" than that of albumin. "The tendency has been to look upon small quantities of sugar in the urine as of no grave import, but recently this view of the subject has given way to a belief that, as a rule, the presence of sugar in the urine, regardless of the quantity, means serious defect, either in the brain or in the liver, or in both, and this view will prove the safer one to follow."

There are numerous illustrations, including several colored plates, all of which are excellent. The type and paper are also good.

An International System of Electro-therapeutics for Students, General Practitioners, and Specialists. By HORATIO R. BIGELOW, M. D., Permanent Member of the American Medical Association, etc., and Thirty-eight Associate Editors. Thoroughly illustrated. Philadelphia: The F. A. Davis Co., 1894. Pp. xxxii-1160. [Price, \$6.]

THE editor says that if electro-therapeutics is to be placed upon a firm basis it must be practiced by thoroughly competent physicians who are acquainted with the nature of electricity and with the laws that govern it. So, after an introductory paper by Professor W. J. Herdman, Professor A. Wilmer Duff furnishes a comprehensive practical paper on electro-physics. Dr. Wesley Mills contributes a brief *résumé* of animal electricity. Dr. H. McClure is the author of a paper on static electricity and magnetism; of the latter, he says that there is, at the present time, no evidence of a reliable nature that a magnetic field, however powerful, exerts any sensible influence on the healthy human organism. As a matter of fact, Dr. Frederick Peterson's comprehensive experiments at the Edison laboratory have demonstrated that the magnetic field exerts no influence on the human organism.

Dr. G. J. Engelmann is the author of the paper on the faradic or induced current, Dr. J. M. Bleyer of that on galvanism,

Dr. A. P. Brubaker of that on electro-physiology, Dr. W. F. Robinson of that on electro-diagnosis, and Dr. F. Peterson of the section on cataphoresis.

Electro-therapeutics for intestinal occlusion is treated of by Dr. Larat, who considers that intestinal galvanization by means of electric injection should be placed in the front rank of remedial measures for this condition.

Dr. A. D. Rockwell refers to the various disorders of the alimentary tract and of the liver and kidney in which electro-therapeutics is indicated, as well as gout and rheumatism.

Dr. N. S. Davis, Jr., is the author of the paper on the electro-therapeutics of diseases of the heart and lungs.

Dr. G. Betton Massey, in his paper on diseases of the uterus, agrees with Inglis Parsons regarding the value of a strong galvanic current in the treatment of cervical cancer. Dr. Parsons also furnishes a separate paper on his method.

Dr. Grand and Dr. Famarque, who are Apostoli's assistants, are the authors of the section on the electrical treatment of fibroid tumors of the uterus.

Dr. J. H. Kellogg discusses in a thorough fashion the electro-therapeutic methods of Apostoli and G. Betton Massey and those employed by himself.

Dr. A. H. Goelet writes on the treatment of diseases of the uterine appendages by electricity, Dr. A. Tripier on that of uterine engorgement and displacements, Dr. A. L. Smith on that of menstrual disorders, Dr. F. H. Martin on that of diseases of the female urethra, and Dr. C. S. Cole and Dr. G. W. Jarman on that of ectopic gestation. It is thus seen that electro-therapeutics in diseases of women is thoroughly considered.

Facial blemishes is the subject of an article by Dr. Henrietta P. Johnson, and Dr. P. S. Hayes is the author of the section on electricity in diseases of the skin.

Dr. C. E. Sajous contributes an excellent paper on the use of electricity in diseases of the nose, naso-pharynx, pharynx, and larynx. Dr. L. A. W. Alleman is the author of the paper on the use of electricity in ophthalmology.

The electrical treatment of nervous diseases is considered by Dr. C. E. Riggs, Dr. Morton Prince, Dr. W. J. Morton, and Dr. W. M. Leszynsky.

There are several other papers by good authors, and we can justly say that the volume comprehensively reviews the therapeutical application of electricity.

Directions for Laboratory Work in Bacteriology. For the Use of the Medical Classes in the University of Michigan. By FREDERICK G. NOVY, Sc. D., M. D., Junior Professor of Hygiene and Physiological Chemistry. Ann Arbor, Mich.: George Wahr, 1894. Pp. 5 to 209. [Price, \$1.50.]

IN his preface Professor Novy says that the subject-matter of this book corresponds with the work carried on in the hygienic laboratory of the University of Michigan. He omits illustrations of the various bacteria because he requires his students to sketch from observation the form of each organism—the book is interleaved for this purpose. The plan of the work is worthy of much praise. An outline of the lecture is given, then a detailed account of progressive methods in technique. Accompanying the lecture-skeletons are about sixty pages devoted to descriptions of the principal micro-organisms, after the manner followed in James Eisenberg's *Bakteriologische Diagnostik*.

The student is directed, when "examining wet," to place the cover-glass on a piece of filter paper, resting on the right index finger, and to rotate the cover carefully till the lower side is perfectly clean and dry, and finally to invert the cover on to a slide. Why not, after washing, turn the cover on to the slide and dry immediately with filter paper, as one would use a blot-

ter on wet ink? This is a simple action, and enough moisture is left for thorough examination. Again, on page 30, the Es-march roll-tube method is given in the old style. The rubber cap is used and the tube is rolled in ice water. The American method is much better—the tube is rolled in a slanting groove made on a block of ice by a tube containing hot water. The chapter on water examination might, perhaps, be more practical if there were an additional lecture upon the examination for intestinal bacteria, because this is the most valuable examination. When sewers leak into wells, or when water supplies are contaminated in any way, typhoid or other intestinal bacteria are the micro-organisms we must look for, first using Theobald Smith's grape-sugar fermentation test, and then the litmus-agar plates. Non-pathogenic bacteria also may, of course, be studied after this plan.

Home Treatment for Catarrhs and Colds. A Handy Guide for the Prevention, Care, and Treatment of Catarrhal Troubles, Cold in the Head, Sore Throat, Hay Fever, Hoarseness, Ear Affections, etc. Adapted for Use in the Household, and for Vocalists, Clergymen, Lawyers, Actors, Lecturers, etc. By LEONARD A. DESSAR, M.D., Visiting Laryngologist to St. Mark's Hospital, etc. Illustrated. New York: Home Series Publishing Company, 1894. Pp. vi-3 to 118.

IN this little volume the author has aimed to present the results of his extensive clinical experience in a practical and untechnical manner, so that the general reader may find it a reliable guide for the proper care of the throat, nose, and ears, as well as a manual for the prevention and treatment of catarrhal disorders of those organs. As is implied in the preface, a large amount of useless suffering would be avoided if laymen possessed better information regarding the structure and functions of these important organs, as well as a knowledge of the best means of keeping them in a normal state, or of caring for them on the first appearance of any abnormal condition. The author has no intention of supplanting the laryngologist by the directions he gives, but rather of anticipating the advent of the physician by immediate treatment.

While occasionally the author, in the fullness of his own knowledge, seems to have presumed on the intelligence of the reader, and especially on the latter's capacity for observation and discrimination, in general his advice is appropriate and given in language that can be understood by everybody.

The work is essentially practical, and it will undoubtedly prove very useful to a number of persons who are not so fortunate as to have a physician within easy call.

Essentials of the Diseases of the Ear. Arranged in the Form of Questions and Answers. Prepared especially for Students of Medicine and Post-graduate Students. By E. B. GLEASON, S. B., M. D., Clinical Professor of Otology, Medico-surgical College, Philadelphia, etc. Philadelphia: W. B. Saunders, 1894. Pp. 7 to 147. [Price, \$1.] [Saunders's Question Compend.]

THE author's object in writing this manual has been to prepare a work that will afford physicians desirous of taking a post-graduate course in otology a *résumé* of the rudimentary facts of that branch of medical science, and to furnish undergraduates with a book that will supplement the meager course of instruction in ear diseases usually afforded by medical colleges.

The anatomy of the ear is briefly reviewed, the principal tests for hearing are well explained, the methods of examination of patients for diagnosis are admirably described, and the various diseases and their treatment are succinctly referred to.

The volume is above the average of works of this class. We note an error on page 69, in the explanation of the abbreviations A. D. and A. S. as *auditus dextra* and *auditus sinistra*; either they should read *auris dextra* and *auris sinistra* or the adjective should be masculine if *auditus* is employed. We believe a better definition of sound than that given—"a peculiar sensation excited in the organs of hearing by the vibratory motion of bodies"—would be: "Sound consists of vibrations that are communicated by a sounding body to a surrounding medium." The sensation is produced by the action on the auditory apparatus by the sonorous vibrations. Our best physiologists divide the organ of hearing into the sound-conducting and the sound-perceiving apparatus, thereby implying the existence of sound extrinsic to any auditory apparatus. To a completely deaf person there is no such thing as sound, except as an abstract idea, but that fact does not eliminate the existence of sound to one whose organs are functionally capable of audition.

The negative answer to the question: "Can sound exist without the presence of an organized being to perceive it?" seems inappropriate, and involves a nice metaphysical discussion. Substitute *light* for *sound* and the text would read: "Light is a sensation, and should carefully be distinguished from the vibrations that produce it." Why the question is introduced is not apparent.

The Diseases of Childhood. (Medical.) By H. BRYAN DONKIN, M. D. Oxon., F. R. C. P., Physician to the Westminster Hospital and to the East London Hospital for Children at Shadwell, etc. New York: William Wood & Co., 1893. Pp. xiv-433.

THE author states that this volume represents the results of his records and recollections during nearly twenty years' experience in children's hospitals, and as an *ipse dixit* we may accept the work and not enter into any discussion of a number of subjects wherein the author's views differ from those entertained by many well-known pædiatrists. His regard for the value of experience in writing on a topic is shown by the omission of variola and some other subjects because he considered his personal experience insufficient.

Furthermore, Dr. Donkin assumes that his reader is conversant with the general knowledge of the diseases discussed, and he emphasizes only the points pertaining to childhood. But he does not consider the subject of children's diseases as, strictly speaking, a specialty; and we thoroughly concur in his dictum that "it may be safely assumed that, however great the practical advantages may be of special hospitals and facilities for this branch of clinical study, the best diagnosis and treatment will be accomplished by those who have concurrent experience of diseases in general at all times of life."

The author emphasizes the fact that a very large proportion of the maladies of childhood are the direct outcome of imperfect and at the same time rapidly progressive growth and development. In the consideration of alimentary and nervous disturbances attention is directed to the fact that these conditions are not always due to primary changes in the organs concerned, but sometimes to untoward strain put upon them by influences from without, and remarks that obedience to simple physiological requirements often suffices to secure a cure.

The volume is divided into six sections. The first section is devoted to disorders of the alimentary tract and of the abdomen; the second to general diseases; the third to acute febrile diseases; the fourth to disorders of the nervous system; the fifth to diseases of the respiratory system; and the sixth to disorders of the circulation.

While occasionally the author's treatment of his subject may

seem meager, as a rule he discusses the essential features and always endeavors to leave the stamp of his opinion, be it with or against that popularly entertained.

The volume is written in an easy, pleasing style, and merits the consideration of those interested in children's diseases, and who is not?

BOOKS, ETC., RECEIVED.

Practical Urinalysis and Urinary Diagnosis. A Manual for the Use of Physicians, Surgeons, and Students. By Charles W. Purdy, M. D., Queen's University, Fellow of the Royal College of Physicians and Surgeons, Kingston, etc. With Numerous Illustrations, including Photo-engravings and Colored Plates. Philadelphia and London: The F. A. Davis Company, 1894. Pp. xiv-357.

A Text-book of Pathology; Systematic and Practical. By D. J. Hamilton, M. B., F. R. C. S. E., F. R. S. E., Professor of Pathology, University of Aberdeen. Copiously Illustrated. Vol. II. London and New York: Macmillan & Co., 1894. Part I. Pp. xxii-515. Part II. Pp. 515 to 1139. [Price, \$10.]

Syllabus of Lectures on Human Embryology; an Introduction to the Study of Obstetrics and Gynecology. For Medical Students and Practitioners. With a Glossary of Embryological Terms. By Walter Porter Manton, M. D., Professor of Clinical Gynecology and Lecturer on Obstetrics in the Detroit College of Medicine, etc. Illustrated with Numerous Outline Drawings. Philadelphia: The F. A. Davis Company, 1894. Pp. vi-125.

Home Treatment for Catarrhs and Colds. A Handy Guide for the Prevention, Care, and Treatment of Catarrhal Troubles, Cold in the Head, Sore Throat, Hay Fever, Hoarseness, Ear Affections, etc. Adapted for Use in the Household, and for Vocalists, Clergymen, Lawyers, Actors, Lecturers, etc. By Leonard A. Dessar, M. D., Visiting Laryngologist to St. Mark's Hospital, etc. Illustrated. New York: Home Series Publishing Co., 1894. Pp. vi-3 to 118.

The Modern and Humane Treatment of the Morphine Disease. By J. B. Mattison, M. D. [Reprinted from the *Medical Record*.]

Rational Medicine and Charlatanry. By Burnside Foster, M. D. [Reprinted from the *Northwestern Lancet*.]

The Bubo Plague in China, with a Brief Account of the Great Plague of London. By Burnside Foster, M. D. [Reprinted from the *Journal of the American Medical Association*.]

Morphinism in Medical Men. By J. B. Mattison, M. D. [Reprinted from the *Journal of the American Medical Association*.]

Bloodless Vaginal Myomectomy. By Oscar J. Mayer, M. D. [Reprinted from the *Journal of the American Medical Association*.]

Massage in Gynecology. By Oscar J. Mayer, M. D. [Reprinted from the *Journal of the American Medical Association*.]

Cœliotomy under Unusual Conditions, with a Report of Ten Cases. By George Erety Shoemaker, M. D. [Reprinted from the *Medical News*.]

The Special Training of the Medical Officer, with Brief Notes on Army Medical Schools Abroad and at Home. By Charles H. Alden, M. D., U. S. A. [An Address delivered before the Association of Military Surgeons of the United States at Washington, D. C., May 3, 1894.]

A Patient Cured Five Years and a Half after Cœliotomy for Tubercular Peritonitis. By George Erety Shoemaker, M. D. [Reprinted from the *Transactions of the Philadelphia County Medical Society*.]

Dermoid Cyst; Broad Ligament Cyst; Vicious Union of Cervix with Vagina. By George Erety Shoemaker, M. D. [Reprinted from the *Annals of Gynecology and Pediatrics*.]

On the Effect of giving Lævulose and Inulin to Patients suffering from Diabetes Mellitus. By W. Hale White. [Reprinted from *Guy's Hospital Reports*.]

Des Abscès péri-amygdaliens. Par A. Gouguenheim et M. Ripault. [Extrait d'*Annales des maladies de l'oreille et du larynx*.]

Annual of the Universal Medical Sciences. A Yearly Report of the Progress of the General Sanitary Sciences throughout the World. Edited by Charles E. Sajous, M. D., and Seventy Associate Editors, assisted by over Two Hundred Corresponding Editors, Collaborators, and Correspondents. Illustrated with Chromo-lithographs, Engravings, and Maps. Vols. I, II, III, IV, and V. Philadelphia, New York, and Chicago: The F. A. Davis Company, 1894.

Travaux d'électrothérapie gynécologique. Archives semestrielles d'électrothérapie gynécologique fondées et publiées par le Dr. G. Apostoli, vice-président de la Société française d'électrothérapie, etc. Paris: Société d'éditions scientifiques, 1894. Vol. I, pp. vii-3 to 720.

Medical Jurisprudence, Forensic Medicine, and Toxicology. By R. A. Witthaus, A. M., M. D., Professor of Chemistry, Physics, and Hygiene in the University of the City of New York, etc., and Tracy C. Becker, A. B., LL. B., Professor of Criminal Law and Medical Jurisprudence in the University of Buffalo, with the collaboration of August Becker, Esq.; Charles A. Boston, Esq.; W. N. Bullard, M. D.; J. Clifton Edgar, M. D.; D. S. Lamb, M. D.; W. B. Outten, M. D.; E. V. Stoddard, M. D. Hon. Goodwin Brown; J. C. Cameron, M. D.; E. D. Fisher, M. D.; H. P. Loomis, M. D.; Roswell Park, M. D.; Irving C. Rosse, M. D.; J. H. Woodward, M. D.; George Woolsey, M. D.; J. Parmenter, M. D.; J. C. Johnston, M. D.; W. T. Parker, M. D. Volume Two. New York: William Wood & Co., 1894. Pp. 5 to 751.

Physiology for Beginners. By M. Foster, M. A., M. D., F. R. S., Professor of Physiology in the University of Cambridge, and Lewis E. Shore, M. A., M. D., Fellow of St. John's College, Cambridge, etc. New York and London: Macmillan & Co., 1894. Pp. ix-241. [Price, 75 cents.]

Diagnosis, Differential Diagnosis, and Treatment of Diseases of the Eye. By A. E. Adams, M. D., Instructor in Diseases of the Eye in the Post-graduate Medical College, etc. New York and London: G. P. Putnam's Sons, 1894. Pp. 94.

The Pocket Anatomist (founded upon "Gray"). By C. Henri Leonard, A. M., M. D., Professor of the Medical and Surgical Diseases of Women and Clinical Gynecology, Detroit College of Medicine, etc. One Hundred and Ninety-three Illustrations. Eighteenth Revised Edition, containing Dissection Hints and Visceral Anatomy. Detroit: The Illustrated Medical Journal Company, 1894. Pp. 300. [Price, \$1.]

The Proceedings of the Fourth Annual Meeting of the Association of Military Surgeons of the United States. Held at Washington, D. C., on May 1, 2, and 3, 1894. Vol. IV.

Transactions of the Medical Society of the State of Pennsylvania, at its Forty-fourth Annual Session, held in Philadelphia, 1894. Vol. XXV.

Transactions of the American Otological Society. Twenty-seventh Annual Meeting. Arlington House, Washington, D. C., May 29, 1894. Vol. VI, Part 1.

Report of the Trustees of the Newport Hospital, presented to the Corporation at its Twenty-first Annual Meeting, July 10, 1894.

Report on Typhoid Fever in the District of Columbia submitted by the Medical Society of the District of Columbia to

the Committee on the District of Columbia of the United States House of Representatives, June 14, 1894.

Customs Law of 1894 compared with the Customs Law of 1890, with Rates of the Mills Bill of 1888 and the Wilson Bill of 1894. With Table of Average *ad valorem* Rates. Second Edition.

State Board of Health. Report of Willis G. Tucker, M. D., Ph. D., Director State Laboratory. [Extract from the *Fourteenth Annual Report.*] 1893.

The Treatment of Erysipelas. By J. M. Anders, M. D., Ph. D. [Reprinted from the *Therapeutic Gazette.*]

Points in the Etiology and Clinical History of Erysipelas. By J. M. Anders. [Reprinted from the *Journal of the American Medical Association.*]

Beriberi, with Report of Cases. By J. M. Anders. [Reprinted from the *Medical Bulletin.*]

Are there Degrees of Insanity? By R. M. Phelps, M. D. [Reprinted from the *Northwestern Lancet.*]

Abscess of the Antrum of Highmore, with Cases and their Treatment. By E. Harrison Griffin, M. D. [Reprinted from the *Medical Record.*]

The Pretubercular and Prebacillary Stages of Consumption. A Consideration of the Early Diagnostic Signs of Pulmonary Tuberculosis—A Plea for the Recognition of Premonitory Symptoms. By Charles Manly, M. D. (Read before the Colorado State Medical Society.)

The Influence of Diseases of the Nose and Nasopharynx on Other Parts of the Body. By W. Scheppegegrell, M. D. [Reprinted from the *New Orleans Medical and Surgical Journal.*]

Appendicitis; a Timely Operation. By Howard Crutcher, M. D. [Reprinted from the *Medical Current.*]

Spasmodic Laughter and Weeping. By Hugh T. Patrick, M. D. [Reprinted from the *Chicago Medical Recorder.*]

The Complicating Conditions, Associated Diseases, and Mortality Rate in Erysipelas. By J. M. Anders, M. D. [Reprinted from the *International Medical Magazine.*]

Spindle-cell Sarcoma and Epithelioma; a Report of Cases. By W. Blair Stewart, M. D. [Reprinted from the *American Medico-surgical Bulletin.*]

Arsenite of Copper as an Antispasmodic. By W. Blair Stewart, M. D. [Reprinted from the *American Therapist.*]

Piperazina and Other Eliminants in the Treatment and Prevention of Gout. By E. D. Mapother, M. D., London. [Reprinted from the *Practitioner.*]

On the Relations of Some Occupations to Eyesight. By Simeon Snell, F. R. C. S. Ed. [Reprinted from the *Quarterly Medical Journal.*]

Cholera and Preventive Inoculation in Gaya Jail. By Surgeon-Major R. Macrae, M. B. [Reprinted from the *Indian Medical Gazette.*]

The Use and Abuse of Arsenic in the Treatment of Skin Diseases. By Isidore Dyer, M. D., New Orleans. [Reprinted from the *Medical News.*]

The Treatment of Acne. By Isidore Dyer. [Reprinted from the *New Albany Medical Herald.*]

Some Meteorological Data. By Samuel A. Fisk, M. D., Denver, Col. [Reprinted from the *Boston Medical and Surgical Journal.*]

Yellow Fever Prophylaxis in Infected Ports. By Edward Hershner, M. D. [Reprinted from the *American Medico-surgical Bulletin.*]

The Physiological Actions of Alcohol. By David Cerna, M. D. [Reprinted from the *Therapeutic Gazette.*]

Sperminum-Poehl in chemischer, physiologischer und therapeutischer Beziehung. Von Dr. Bubis. [Separatabdruck aus der *St. Petersburger medicinischen Wochenschrift.*]

Ueber die Behandlung der Placenta praevia mittels intrauterine Kolpeuryse. Von A. Duhrssen. [Sonderabdruck aus der *Deutschen medicinischen Wochenschrift.*]

Kaiserschnitt, tiefe Cervixincisionen und mechanische Dilatation des Muttermundes. Von Dr. Duhrssen. [Sonderabdruck aus der *Berliner klinischen Wochenschrift.*]

Ueber die operative Heilung der mobilen und fixirten Retroflexio uteri auf vaginalem Wege mit besonderer Berücksichtigung der Dauererfolge. Von Dr. Duhrssen. [Sonderabdruck aus dem *Archiv für Gynäkologie.*]

Ueber eine neue Methode der Laparotomie (vaginale Coeliotomie). Von Dr. Duhrssen. [Sonderabdruck aus der *Berliner klinischen Wochenschrift.*]

Ueber aufsteigende Degeneration nach totaler Quetschung des Rückenmarkes. Von Hugh T. Patrick, M. D. [Sonderabdruck aus dem *Archiv f. Psychiatrie u. Nervenkrankheiten.*]

Neue Beiträge zur operativen Behandlung der Magenerweiterung. Von Dr. Med. Heinrich Bircher. [Separatabdruck aus der *Correspondenz-Blatt f. schweiz. Aerzte.*]

Ueber eine neue Heilmethode der Harnleiterscheidenfisteln nebst Bemerkungen über die Heilung der übrigen Harnleiterfisteln. Von Dr. Duhrssen. [Sonderabdruck aus der *Sammlung klinischer Vorträge.*]

Vibratory Medicine. By Hugh T. Patrick, M. D. [Reprinted from the *Chicago Medical Recorder.*]

Miscellany.

The Late Dr. Oliver Wendell Holmes.—The *British Medical Journal* for October 27th contains the following letter from Dr. W. T. Gairdner:

"MY DEAR EDITOR: I have read with full appreciation your notes of an interview last year with dear old Oliver Wendell Holmes, and am at once glad and proud (as any of us may well be) to find myself lovingly remembered as one of his old friends on this side of the Atlantic; but it is only right to make one correction. It is certainly not the case, and could not possibly, I think, have been intended to be conveyed to you that Dr. Holmes met me in Paris in the days of Louis Philippe, for at the time referred to I was more likely to have been puzzling over the multiplication table and vulgar fractions, or over early Latin lessons in school, than over the statistical method of studying typhoid fever, under Louis at La Pitié. There was a Dr. Jackson, Jr., who was a well-known pupil of Louis at that time, and was then and afterward quite affectionately intimate with Dr. Holmes. I think it not improbable that my name may have slipped into your notes in this relation alongside of his. But, be this as it may, the true origin of my long friendship and correspondence with Oliver Wendell Holmes may possibly interest your readers; and certainly there is nothing in it which can do aught but add to the feelings of affectionate admiration with which he is regarded by the entire medical profession, not to say the whole civilized world.

"The real date of my first correspondence with Oliver Wendell Holmes was 1856. In the immediately preceding year Dr. James Jackson, then only known to me by reputation, and the father of the James Jackson, Jr., aforesaid, published a small volume entitled *Letters to a Young Physician just Entering upon Practice*. Being at the time a young physician myself, although old enough to have established a connection with the *Edinburgh Medical Journal*, I read this work with a strong feeling of youthful enthusiasm, and was only too happy to find, or make, an opportunity of commending it to the notice of

others in a review, which I can read even now without any sense of its being overstrained, although pervaded in every line by the feelings of deep respect and gratitude excited by the perusal of this work of an evidently venerable, but to me little known, author.* Certainly, the last thing that ever could have entered my mind in penning this anonymous tribute was that it would bring me into friendly, even affectionate, relations with one who, if not quite indisputably first of American humorists, is at all events inferior to none in the unique character and high spiritual quality of his humor.

"Oliver Wendell Holmes was at this time a man in middle life, and had become very closely connected by marriage with Dr. Jackson. How it was discovered that I wrote the review in question I do not now remember; but the next post brought me a letter of acknowledgment from Dr. Jackson, and the immediately succeeding one a photograph of the old man, sent to me with his signature and with a delightful letter from Dr. Oliver Wendell Holmes, who revealed to me in it the warm affection and almost unqualified admiration inspired throughout the profession in America by the character of the senior. That portrait of Dr. Jackson is now in my retiring room at the university.

"His son, James Jackson, Jr., had been previously known to me by reputation as a follower of Louis, and as one who had died too early to have established a fame such as might have been anticipated from his communications to the Society of Medical Observation in Paris. He was, I believe, well known to the late Dr. Walshe.

"In 1861 *Another Letter to a Young Physician* was published by Dr. Jackson, Sr., with some further medical papers, including an important one on the last illness and death of Washington.

"But my intercourse and correspondence with the older man may be said to have been wholly taken up and absorbed by Oliver Wendell Holmes, with whom, to my great satisfaction and advantage, I have ever since continued to correspond from time to time, the last letter received from him being certainly not quite two months before his death.

"Even at the above-mentioned date of my first letter from him, the name of Oliver Wendell Holmes was well known as that of an author of a quite unique charm, who was thoroughly loyal to his profession while cultivating literature with a rare amount of success.

"I can not now remember what it was in his writings that had impressed me, as I suppose the famous 'Autocrat' could not possibly have been known to me till some years later.

"But I know this, that as the star of Lowell had not yet risen, at least on our side of the Atlantic, the literary quality of the humor displayed in the writings of Holmes, and the large grasp of contemporary thought, combined with medical and physiological illustrations, struck me as being a quite new phenomenon alike in literature and in medicine; and having been up to that time accustomed only to bits and scraps in newspapers of Josh Billings, etc., as samples of American humor, I was the more drawn to this unique phenomenon, and my personal relations with the author, as above indicated, were more than maintained by an ever-increasing familiarity with his works, on which, however, I will not at present enlarge, as my opinion on them is simply that of the whole world.

"It has been well observed in many quarters that to know Dr. Holmes, even through his works, is to know him and to love him personally; but I venture to think that the relations into which I was thus accidentally drawn with him in correspondence were of a kind which justified his allusions in the

interview which you record, quite apart from the apocryphal Paris incident.

"For more than a quarter of a century I continued to correspond with Dr. Holmes from time to time without having ever had the chance of seeing him; and when he came to this country in 1886 I was most anxious to have it arranged that he should come to Glasgow and be in the hands of a few friends there for a visit to the Clyde and the land of Burns. The American consul here at this time was Francis H. Underwood, LL. D., a man of fine literary instincts, a personal friend of all the Boston men of eminence, and one of the early contributors to, if not editor of, the *Atlantic Monthly*, a man whose personal popularity in Glasgow would have alone secured the success of such a visit.

"But it was not to be. The magnetism of London society and the necessity of coming down to Edinburgh, though but for a single day, in order to receive the degree of LL. D., exhausted all the time that could be devoted to Scotland, and I had to content myself on this occasion with the pleasure of being present at the graduation in Edinburgh, and afterward meeting Dr. Holmes in the evening at the house of Professor Crum Brown.

"In the autumn of 1891, however, I went to the United States for the first time, and was, like you, privileged so far as to spend the greater part of a day with Oliver Wendell Holmes at his beautiful summer residence at Beverly Farms.

"I did not make any notes of that interview at the time, and have, therefore, not much in detail to say about it; but it was peculiarly delightful to find the dear old man actually awaiting me at the station, full of gentle kindness and astonishing animation; full, also, of beautiful reminiscences and little revelations of his innermost self, which will remain with me, I trust, to the last.

"At this time Mrs. Sargent, his widowed daughter, who accompanied him to this country in 1886, was dead, and he lived with his son, the eminent Judge Holmes, referred to in your memoir, who was with us at lunch at Beverly Farms on that occasion. The conversation naturally had a very wide range, and I can not make even an attempt to reproduce it; but it left on my mind the same consistent impression which Oliver Wendell Holmes produced upon every one alike in his works and in his conversation, of a mind rendered cheerful and serene, not to say youthful, even in extreme old age, by a kind of optimism which could only be the result of a well-assured and loving trust in the best and highest spiritual things. In him this element of what may be very properly called 'faith' was so steadily maintained as to keep him easily at a spiritual level far above the small vexations which disturb inferior natures. Some of the memoirs of him lately published seem to me to assume too easily that this happy temper of his was a result merely of his fortunate surroundings. I will venture to indicate, without going into any detail, that this was by no means so. Oliver Wendell Holmes was a happy man to the last, in spite of some very disturbing domestic circumstances (for which no one was to blame), but which in many high-strung natures might have tended to quite the opposite result.

"There was a curious similarity in this respect, as in some others, between him and my equally dear friend Dr. John Brown, the well-known author of *Rab and His Friends*; but the temperament of the two men, alike in one thing—lovableness—was very different, and the effect of calamity upon them differed accordingly. Both of them, however, will remain, to all who have personally known them, and to a multitude of admirers who have not had that privilege, among the noblest as well as the most lovable men of genius that our age has produced.

I am, etc.,

W. T. GAIRDNER.

* *Edinburgh Medical Journal*, April, 1856, p. 934.

"P. S.—One little incident of the conversation that afternoon is perhaps worthy of being recalled and here set down, because it appeared to me at the time so absolutely characteristic; and there is no one else in a position to record it. In the course of a long drive in his little open carriage, in which he took me to see some of the noble elm trees of which he had sung the praises in his works, we found ourselves were not far from Salem, the birthplace of Nathaniel Hawthorne, with its terrible memories of witch persecutions in the seventeenth century. I had just been visiting a very old lady (all but a centenarian) well known to him, whose marvelous vitality and restless mental activity contrasted, in a way that almost seemed 'uucanny,' with the bodily frame wasted and decayed to the last possible degree consistent with life. I ventured to say to him: 'It is fortunate that Mrs. — did not live in Salem in the middle of the seventeenth century; for some of your ancestors or their friends would certainly have had her burned for a witch.' He looked me in the face, half seriously and half in jest, and said at once: 'Is she *not* one?' I could not help thinking at the moment of Elsie Venner, with the impossible rattlesnake theory so elaborately worked out through the aid of the 'scientific imagination,' till it seems to the average reader to be gravely propounded as an outcome of the laws of heredity.—W. T. G."

A New Method of Cranio-cerebral Topography in Brachycephalic and Mesaticephalic Children.—At a recent meeting of the *Congrès français de chirurgie*, a report of which appears in the *Progrès médical* for October 20th, M. Lannelongue and M. Maucclair presented a paper on this subject in which they remarked that among the numerous methods of cranio-cerebral topography which sprang up every year we must distinguish between those in which the authors had used absolute lines and given fixed distances on these lines, without regard to the individual variations, and those in which an average line was taken on which a given distance was calculated. After several attempts M. Lannelongue and M. Maucclair had adopted an average line in order to investigate the inferior guiding marks; they had pursued the study on fifty-two children from two to fourteen years old. Their line of operation was a horizontal apophyso-orbito-supraprotuberantial curved line. It started from the superior external angle of the orbit and from the middle part of the apophysis; it came out behind on the sagittal line above the external occipital protuberance. This curved line was easily traced, according to M. P. Broca, who had advised placing the head in a horizontal position. Some writers, however, had differed with him in this respect, but M. Lannelongue and M. Maucclair had not been able to follow their method, for, if the zygomatic apophysis was taken as a guiding mark, this line was sufficient for practice.

The anterior branch of the middle meningeal artery corresponded approximately to the union of the anterior tenth with the posterior nine tenths of the authors' proportional line. According to them, the superior extremity of the fissure of Rolando among brachycephalic children was a centimetre and a half behind the midsagittal point. In order to ascertain the inferior extremity of this fissure, the point of junction of the anterior fifth with the posterior four fifths of this proportional line must be found, and, at this point, a vertical line raised equal to this fifth. To ascertain the situation of the base of the third frontal circumvolution, near the point of junction of the anterior sixth with the posterior five sixths of the proportional line, a vertical line equal to this sixth must be raised. Very near the top of this (within from three to four millimetres at least) Broca's center would be found. In order to ascertain the region of the *pli courbe*, at the union of the anterior two thirds

with the posterior third of this proportional line, a perpendicular line equal to this third must be raised. At the top, the posterior extremity of the posterior branch of the Sylvian fissure would be found.

In puncturing this horizontal curved line near the external auditory meatus the sphenoidal cornu of the cerebral ventricles is penetrated. The recent operations of cranioplasty enabled us to raise large pieces of the cranium, so that rigorous procedures were not necessary in order to come within about a centimetre of finding any center searched for. Among children these osteoplastic resections (which were of no use unless the lesions were extensive) should be replaced by a less rigorous intervention—that is, by the application of the trephine in one or two places.

The authors had been struck with the variations of length of the lines used. It showed that there existed individual variations which must be taken into consideration, and it showed the fallacy of those procedures in which the guiding marks were represented by absolute figures.

Warts of the Mucous Membrane Coincident with Warts of the Hands.—The *Journal de clinique et de thérapeutique infantiles* for October 25th publishes an article on this subject by M. G. Variot, who has had under his observation a young boy, nine years old, who presented several typical warts on the fingers of the right hand. The boy's mother drew the author's attention especially to a small protuberance on the buccal mucous membrane nearly a centimetre behind the labial commissure. Its elevation did not exceed three millimetres and its diameter was about a millimetre. This small mass was of a pearl-white color at its extremity, and contrasted sharply with the red color of the surrounding mucous membrane. It terminated in many fine bristles which gave it the appearance of a small cauliflower. The child was somewhat inconvenienced by this protuberance, which he had had for several weeks, and he wished it taken off. The author made a diagnosis of papilloma of the buccal mucous membrane, which, he thought, had been developed in all probability by secondary inoculation of the typical warts on the fingers. The bristle-like aspect of this small tumor and its exact limitation confirmed the diagnosis of papilloma. The author cut it off and cauterized the base with nitrate of silver.

M. Chabry, an *interne* of the *Hôpital Hérol*, took microscopical sections of the tumor after it had been hardened in alcohol, and on these sections the author had seen many protuberances fringed at the extremity and showing all the characteristics of horny productions analogous to those which are met with in verrucous papilloma. M. Variot thought that the papilloma on the mucous membrane was connected with the warts on the face, and that in this case there had been self-inoculation, since the child had had typical warts on the hands. This fact, he thought, might be added to others to prove the inoculability of warts, not only on the cutaneous surface, but also on the surface of the dermo-papillary mucous membrane.

Immediate Surgical Intervention in a Case of Simple Perforating Ulcer of the Stomach.—The *Mercredi médical* for October 24th publishes a communication made by M. P. Michaux to the *Congrès de chirurgie*. The author stated that, so far as he knew, it was the first case in which success had been obtained in France by immediate intervention in perforative ulcer. In September, 1893, a man, thirty-one years old, after lifting a rail, had been taken with a severe epigastric pain accompanied by a sensation of internal laceration. Half an hour afterward, the pain not having diminished, the man took a drink of wine. Immediately the epigastric burning increased and the pain became more severe. Three hours later he vomited once. When

the physicians saw the patient, eight hours after the accident, nothing in his general condition denoted the gravity of the internal lesion. The pulse was 80 and full, the temperature was 100·7° F., there was sharp epigastric pain, and the abdomen was retracted and tense, especially at the upper part of the recti muscles.

The author suspected laceration of the stomach or of the intestine, and he urged the necessity of immediate surgical intervention. The operation was performed with the usual precautions. An exploratory incision was made from the xiphoid cartilage to the umbilicus. When the peritonæum was opened wine, altered and mixed with some remains of food, escaped. The incision was enlarged and the liver forcibly raised by an assistant, and deep under the liver, near the vertebral column, about two centimetres from the cardia on the anterior surface of the stomach, the author found the perforation. This was cleansed and disinfected. Then the author tried to suture the edges of the perforation, but the tissues were too friable. As it was out of the question to excise the ulcer, there was nothing to do but to inclose the perforation in the bottom of a fold made on the anterior surface of the stomach; occlusion was assured by a double row of Lembert's sutures very carefully inserted at equal distances. The incision was closed except at the lower part, through which the author passed an iodoformed pledget as far as the sutured ulcer. Very satisfactory results followed, notwithstanding that, on the eighth day, a slight turbid serosity, which very soon became purulent, escaped. The author, fearing to destroy his own work, allowed the fistula to continue for five months without daring to touch it. The patient, who was at first emaciated in spite of all efforts on the part of the physicians, afterward grew stout. In March, 1894, the author incised the fistulous tract and scraped and cleansed the gastro-subhepatic purulent sac. A month later a cure was obtained, and at the time of the report the patient was in a perfect condition.

It had been established, said M. Michaux, that perforation was a frequent complication of ulcer. A curious fact was that, if the ulcer occurred more frequently at the posterior wall and in the pyloric region, perforation was more frequent on the anterior surface. When the ulcer became perforative, three things might be produced: General peritonitis, partial peritonitis, and fistula. The author thought that perforation might be diagnosed. The occurrence of perforation, whether it followed a diagnosed or a concealed ulcer, was always the same thing and left no doubts. There were severe epigastric pains, a sensation of burning and internal laceration, retraction of the abdomen, disappearance of the hepatic dullness, occasional vomiting, and, finally, symptoms of generalized peritonitis with elevation of temperature, or else collapse and hypothermia.

From these facts, said M. Michaux, sprang, without doubt, the necessity of surgical intervention. It was as necessary as in cases of perforation of the vermiform appendix, intestinal wounds, or grave abdominal contusions. This intervention comprised the following steps: An exploratory incision; searching for the perforation; if it was easily accessible, excision or paring, as M. Roux, of Lausanne, had done; if it was only slightly accessible, folding of the stomach, according to the procedure mentioned above by the author; and indirect occlusion of the perforation by a double row of sutures at equal distances. The condition of success was careful intervention within the first twelve or fifteen hours.

The Earthworm as a Drug.—In the October number of the *Indian Medical Record* C. F. Britto, L. R. C. P. and S., Edin., of Rangoon, tells of what he has observed and conjectured on the subject of the earthworm (*Lumbricus terrestris*) as a medi-

cine. He relates that some years ago he went fishing and took with him some earthworms covered with wet mud in a cocoa-nut shell, and that toward evening he returned home with the shell containing the worms, intending to go fishing again the next day. The next morning, to his great surprise, he found that the mud had nearly disappeared from the cocoa-nut shell, and some of the worms had left the shell, while others were still within it buried in a thick, gelatinous-looking mucus. He appears to think that the worms dissolved the mud, and from this he fancies that these worms must possess the property of dissolving urinary deposits. Unfortunately, he goes on to say, he has not had an opportunity of testing his theory, but intends to do so when an occasion arises, and hopes that in the mean time some of his professional brethren will try the plan and report their results. This is how he means to use the worms: After being dug out of the earth the worms are to be kept in a vessel for half an hour—*i. e.*, “till they have digested all the mud they have eaten.” Then ten or twelve of them are to be washed with cold water and boiled for half an hour in half a pint of water, so as to make a soup, and the whole of this soup is to be given to the patient at one dose. The author states that the soup ought to be prepared fresh each time, but he does not say how often he thinks the dose ought to be administered. His closing suggestion is that, if the soup is found to be useful, some of the well-known chemists in Europe and America might prepare an extract of the worms, and for such an extract he proposes the term *extractum lumbrici terrestris*.

Vaginal Excision of Non-malignant Stricture of the Rectum.—At the eighth session of the French Congress of Surgery, recently held in Lyons (*Union médicale*, October 25th), M. Campenon, of Paris, read a paper describing a method of excising non-cancerous strictures of the rectum by way of the vagina. The patient lying on her back, the finger was introduced into the rectum, and then the whole recto-vaginal septum was cut through by transfixion from the fourchette to the anus, making a very large open surface. Then sutures were inserted into each of the vulvo-anal flaps thus formed, and a transverse incision through the intestine was made at the lower border of the stricture, after which the rectum was dissected out from below upward and the whole length of the stricture isolated. The next step was to make a second transverse incision through the rectum at the upper border of the stricture and cut out the strictured portion. Finally the upper part of the rectum was stitched to the lower part, and the sphincter was re-established at once by special points of suture, and the operation was finished like an ordinary perinæorrhaphy. A patient on whom the author had operated by this method had recovered completely and had perfect control of the sphincter.

Erysipelas as a Curative Agent in the Paraplegia of Pott's Disease.—In a report of the proceedings of the French Congress of Surgery recently held in Lyons, published in the *Journal des praticiens* for October 27th, there is an account of a case observed by M. Loison, in M. Poncet's service, of a young girl who for three years had had kyphosis of the dorsal region due to Pott's disease, also a slough over the sacrum. She was treated by the application of a Bonnet's splint, when an extensive outbreak of erysipelas attacked her, followed by three abscesses. After this she recovered the power of moving her toes. There was then a second attack of erysipelas, and this was followed by additional improvement. After a third attack of erysipelas her condition was so much better that she could walk when her trunk was maintained by means of a corset. The improvement grew more and more decided, and at the time of the report the woman was able to do hard work. The author said that he mentioned this case not only as a clinical

curiosity, but also to show the curability of paraplegia due to Pott's disease by simple measures. The coincidence of the cryspelas and the favorable course of the vertebral disease should not be ignored, he added, however inexplicable it might be.

The Middle Tennessee Medical Association.—The first regular meeting will be held in the Senate Chamber of the Capitol on November 20th and 21st, under the presidency of Dr. J. B. Cowan, of Tullahoma. The programme includes the following papers:

The Climacteric: its Phenomena and Dangers, by Dr. J. S. Nowlin, of Shelbyville (to be discussed by Dr. A. H. Abernathy, of Erin); Perineal Urethrotomy: its Indications and Technique, by Dr. James W. Handley, of Nashville (to be discussed by Dr. M. Woodson, of Gallatin); The Etiology and Pathology of Vascular Diseases of the Brain, by Dr. J. R. Buist, of Nashville (to be discussed by Dr. W. L. Nichol, of Nashville); The Differential Diagnosis and Treatment of Vascular Diseases of the Brain, by Dr. John A. Witherspoon, of Nashville (to be discussed by Dr. John S. Cain, of Nashville); The Use and Abuse of Antipyretics, by Dr. J. W. Waters, of Nashville (to be discussed by Dr. W. C. Bilbro, of Murfreesboro); The Treatment of Pleural Effusions, by Dr. J. B. Murfree, of Murfreesboro (to be discussed by Dr. S. B. Fowler, of Gainesboro); Placenta Prævia, by Dr. F. J. Runyan, of Clarksville (to be discussed by Dr. J. Bunyan Stephens, of Nashville); The Methods of Conducting Gynecological Examinations, by Dr. W. K. Sheddan, of Williamsport (to be discussed by Dr. W. D. Haggard, of Nashville); The Prognostic Value of Examinations, Abdominal, Vaginal, and Pelvic, before Labor, by Dr. W. A. H. Coop, of Lawrenceburg (to be discussed by Dr. Thomas Menees, of Nashville); The Prevention and Treatment of Puerperal Mastitis, by Dr. A. J. Swaney, of Gallatin (to be discussed by Dr. B. B. Gracey, of Smyrna); A Clinical Report on Naso-pharyngeal Reflexes, by Dr. L. B. Graddy, of Nashville (to be discussed by Dr. George H. Price, of Nashville); The Differential Diagnosis and Treatment of Conjunctivitis and Inflammations of the Anterior Portions of the Uveal Tract, by Dr. G. W. Hale, of Nashville (to be discussed by Dr. T. Hilliard Wood, of Nashville); Is Appendicitis Essentially a Surgical Affection? by Dr. Robert Pillow, of Columbia (to be discussed by Dr. John Wickham, of Palmyra); The Treatment of Severe Typhoid Fever, by Dr. T. H. Marable, of Clarksville (to be discussed by Dr. G. W. Moody, of Shelbyville); Fractures of the Femur, by Dr. Paul F. Eve, of Nashville (to be discussed by Dr. S. C. Bridgewater, of Dixon Springs); The Radical Cure of Inguinal Hernia, by Dr. Charles S. Briggs, of Nashville (to be discussed by Dr. Charles S. Brower, of Nashville); The Significance of the Uric-acid Diathesis, by Dr. J. B. Cowan, of Tullahoma (to be discussed by Dr. William Murrell, of Winchester); A Study of Acute and Chronic Nephritis, by Dr. Hazle Padgett, of Columbia (to be discussed by Dr. N. D. Richardson, Jr., of Nashville); Facial Blemishes, by Dr. C. R. Atchison, of Nashville (to be discussed by Dr. Cranston Nash, of Nashville).

The New York Academy of Medicine.—At the last meeting of the Section in General Surgery on Monday evening, the 12th inst., the following cases were to be presented: A Case of Trephining for Depressed Fracture of the Skull, by Dr. A. J. McCosh; A Case of Traumatic Meningocele—Carcinoma of the Colon; Excision; End-to-End Anastomosis with the Murphy Button, by Dr. H. Lilienthal; Ideal Cholecystotomy—Abscess of the Liver, by Dr. C. L. Gibson; and A Lead Pencil in the Axilla mistaken for Fracture of the Clavicle, by Dr. Sinclair Tousey. A paper entitled A Clinical Contribution to the Surgery of Intestinal Obstruction was to be read by Dr. Francis H. Markoe, and one on An Improved Method of the Radical Opera-

tion for Carcinoma of the Breast, by Dr. Willy Meyer. There was an exhibition of pathological specimens and of apparatus.

Where should Symphysiotomy be Performed?—Dr. H. J. Garrigues lately read a paper on symphysiotomy before the Medical Society of the County of New York. The paper is published in the *Medical Record* for November 10th. Its concluding paragraph is as follows: "As it is next to impossible to perform an aseptic operation in most private dwellings, especially of the poor, who are much more likely to require symphysiotomy than the rich; as many and skilled assistants are needed, and as the after-treatment often is quite complicated, the chances for a good result with this, as with all major operations, are much better in a hospital than in private houses. Wherever it is possible, patients requiring symphysiotomy should be removed to a hospital, be it a lying-in hospital or another institution where abdominal operations are usually performed. Such a place in this city is St. Mark's Hospital, and I shall be happy to treat any case there you will place under my care. It is, in my opinion, no excuse for killing a child that the accoucheur is not prepared to perform symphysiotomy, as long as there is somebody else within reach whose services can be obtained, and who is able to substitute a life-saving for a destructive operation."

The Society of Medical Jurisprudence.—At the last regular meeting, on Monday evening, the 12th inst., the paper of the evening was on the subject of The Professional and Moral Relation of Physicians and Lawyers to their Patients and Clients, by Judge William H. Arnoux.

The Medical Society of the State of New York.—The following business committee has been appointed by the president of the society: Dr. W. C. Phillips, of New York; Dr. H. L. Elsner, of Syracuse; Dr. H. DeV. Pratt, of Elmira.

A Moderate View of Vivisection.—In response to an invitation to attend the Eleventh International Congress for the Prevention of Cruelty to Animals, the president of our American society, Mr. John P. Haines, has written a letter, published in the September number of *Our Animal Friends*, in which we are greatly pleased to find the following moderate and perfectly justifiable expressions:

"On the painful and difficult subject of physiological experiments on living animals, which pass under the name of vivisection, I trust that the congress may proceed with equal caution and resolution: with caution, because there are two sides of this question, and it is possible to injure our own cause by willfully ignoring that fact; with resolution, because there is one point in respect of which we have no right to compromise.

"Speaking for myself alone, I am not prepared to justify any of the operations which pass under the general name of vivisection. If it be admitted that animals have rights, I do not see how those operations can be excused, unless on the ground that it is lawful to do evil that good may come of it, or, in other words, that the end justifies the means. At the same time, I must admit that, so long as men justify war, with its attendant desolation, miseries, wounds, and death to human beings, they can not be expected to refuse the prospect, or even the possibility, of benefit to man at the cost of suffering to other animals. The question which the world asks is simply this: Whether, as a matter of fact, physiological experiments have so promoted medical science as to benefit the human race? A minority of the medical profession answers in the negative; a vast majority in the affirmative; and, while the hearts of men are with the minority, their judgments are swayed by the preponderating judgment of the majority. For this reason, to wage an indiscriminate warfare against those physiological ex-

periments is to set not only the medical profession, but the world at large, in opposition to us, and so to impair our own power in many departments of our work in which it should be our highest aim to form the public mind and create a public sentiment. It is therefore from a sense of duty that I suppress my personal feeling in the expression of the hope that the congress may not consider it necessary to pronounce an indiscriminate condemnation on all forms of vivisection.

"On the other hand, I sincerely trust that the congress may speak with energy in denunciation of the wanton and willful cruelties which are daily perpetrated in the name of science. I consider it the duty of all who are devoted to the protection of animals to denounce in unequivocal terms a multitude of atrocities for which there is no excuse.

"It is an inexcusable atrocity to subject any animal to pain which can be prevented by a conscientious use of anæsthetics.

"It is an inexcusable atrocity to perform painful operations upon animals merely for the purposes of demonstration to classes of medical students. The results of such experiments are well known. To repeat them is an unnecessary and gratuitous cruelty.

"It is an inexcusable atrocity to permit medical students and mere laymen to repeat painful physiological experiments which have already been performed, and needlessly performed, many thousands of times.

"I might greatly enlarge this list, but I would submit to the congress this important point, that, by confining our objections to such wanton and gratuitous cruelties as these, we may hope to secure the support of right-minded members of the medical profession. The moderation of our own society in this particular has won for it the approbation of many medical men; and, if the medical faculty itself could be won to share our feelings in this matter, we should gain an influence for the protection of our dumb clients which is to be gained in no other way."

A Tribute to a Lady Physician.—Dr. William S. Cheesman, of Auburn, N. Y., sends us the following:

"Amanda Sanford was born in Rhode Island in 1838. When seven years of age she came with her widowed mother to Scipioville, in Cayuga County, N. Y. In later years, when speaking of this time, she said to a friend, 'I am glad I was poor.' Her education was obtained at the Friends' Academy in Union Springs. After graduation, in order to recover her health, which had suffered from school work, and to earn money for the furtherance of her plans to study medicine, she started a vegetable garden, the while applying herself to Greek as a diversion. At the end of a year, with a hundred dollars in pocket and restored in strength, she began teaching at the Hawland School in Union Springs and reading medicine by herself. In two or three years she was able to enter the Woman's Medical College in Philadelphia. After graduating there, she spent eighteen months in the New England Hospital in Boston, and in the autumn of 1871 went to Ann Arbor, Mich., where she was graduated in the following spring with the first honors, the only woman in a class of ninety. In 1872 she settled in Auburn, and was rapidly successful in practice. The year 1879 was spent in study in Paris and London. She was a member of the original staff of the Auburn City Hospital, and continued an active member till her death. She married Mr. Hickey, of Auburn, in 1884.

"These are the outlines of a career unusual in the impression left upon the hearts and minds of associates and friends. She was a woman of dignified and stately presence, which, united with natural reserve, would have made her appear cold, had it not been for her finely modulated, sympathetic voice and the gracious serenity of her smile. She possessed in a rare degree

the gifts of silence, deliberation, and perseverance. But, though self-reliant and self-contained, as all strong natures are, she won the affection as well as the esteem of those with whom she came in contact. The gratitude of patients, poor as well as rich, and the warm attachment of persons of varied temperaments attest the charm and unselfish devotion, as well as the power, of her personality; while the thoroughgoing confidence and respect of her colleagues rewarded the honor and magnanimity of her professional relations. In her calling she possessed courage and skill, operating with success in cases of varied intra-abdominal disease. It was, however, as the trusted family physician, friend, and counselor that her gifts and character best expressed themselves. Many mourn for her as for an ideal and an inspiration lost.

"Dr. Hickey died on October 17, 1894, of pneumonia contracted, it is supposed, by chill after assisting at a tedious abdominal operation in an overheated room. Death did not take her unawares. Her intuition was, even in her own case, not at fault, for she foresaw the danger while yet distant, and with characteristic calm made dispositions for the future. In accordance with her wish, her body was committed back to earth in the village cemetery at Scipioville, where her life of study and labor and high usefulness in this vicinity had its beginning."

Unconscious Delivery.—The *Medical Reporter*, of Calcutta, credits the following to the *British Medical Journal*: "Le Blond (*Jour. de méd. de Paris*) related in July a remarkable case before the Medico-legal Society of Paris. A woman, aged twenty-seven, who had been seduced and deserted, was seized with slight colicky pains, but continued to work. In the course of the following night she was attacked with still more severe pain. Thinking that an action of the bowels would give relief, she sat upon her chamber utensil; on straining, a live child was born. This alarmed her greatly, but she cut the cord with scissors, wrapped the infant in a cloth, and walked downstairs, telling the people in the house, in fear and trembling, what had happened. Violent flooding set in. The cord had not been tied. Early in the morning Le Blond saw the patient, and found the placenta still in the vagina. He extracted it. The mother and child did very well. Had the child died the mother would have been very strongly suspected of murder, especially if she had attempted to defecate in a public privy, in which case the child would almost inevitably have been killed."

A Death from the A.-C.-E. Mixture.—On the 6th inst. Dr. R. Stansbury Sutton had a death occur from the administration of the A.-C.-E. mixture. The patient, a woman, forty-four years of age, with a bleeding fibroid, was being anæsthetized in her bed, outside of the operating room. The anæsthetic was given by an experienced assistant; it was given through an open cone the top of which was filled with absorbent cotton. The entire amount of anæsthetic given was six drachms, of which four were probably inhaled. The patient was a large, fleshy, and anæmic subject. Prior to the administration of the anæsthetic, she was given an eighth of a grain of morphine hypodermically. Ten days before this, Dr. Sutton had given her an anæsthetic (sulphuric ether) for an examination, and no trouble had resulted upon that occasion. Her heart was examined prior to the administration of the anæsthetic on each occasion, and no organic lesion was detected. The time from the moment she began taking the A.-C.-E. mixture until she was dead did not exceed fifteen minutes. The patient was inverted, artificial respiration was instituted, and the tongue was drawn out and kept out. Trinitrin and brandy were injected under the skin, the left chest was slapped freely, and while the nurse was starting the battery the patient was pronounced dead.

Lectures and Addresses.

CARIES OF THE SPINE

FOLLOWED BY COMPRESSION OF THE CORD.*

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LECTURE II.

COMPRESSION of the spinal cord may result from any morbid process that gives rise to narrowing of the spinal canal to a sufficient extent to encroach upon the space actually occupied by the cord. The chief cause is an affection of the bones of the spinal column, especially from caries and traumatism. Growths of the bones or of the membranes, aneurysms eroding the bones and extending into the spinal canal, and thickening of the dura, may compress the cord. Most of the causes mentioned directly affect the cord only one or two inches in its vertical extent, but sometimes we find an exception when the compression is due to pachymeningitis with considerable thickening of the dura. Under such circumstances the cord space may be encroached upon several inches in its longitudinal axis. The character of the symptoms depends largely upon the degree of the compression and the rapidity with which it is developed, regardless of what may be the morbid process by which the compression is exerted; but my remarks to-day will be limited mainly to compression of the spinal cord from caries of the spine, and its usual concomitant, thickening of the dura.

The functions of the cord are disturbed by compression and the resulting inflammation.

From a knowledge of the pathological changes that take place in compression of the cord, the symptoms are readily appreciated. These consist in narrowing of the cord at the seat of compression, change in color and consistence of the cord substance, thickening of the walls of the blood-vessels, increase of interstitial tissue and destruction of nerve fibers. The narrowing includes one or two inches of the vertical extent of the cord. Sometimes the cord at the seat of compression is cylindrical, sometimes flattened, and at others it is irregularly indented, thus accounting for the irregularity of the symptoms, as one system of fibers may be greatly damaged while another may escape. The size of the cord is often reduced to one half or even one third of the normal. In some cases, however, although the function of the cord is greatly impaired, the size at the seat of compression is but little less than that of normal. The affected portion is grayish, and the distinct difference in color between the white and gray matter is lost. In recent acute cases the consistence of the cord is lessened, but in those where the compression is very gradual, and in the chronic stage of all varieties, the consistence is increased by the development

of interstitial tissue and the degeneration of nerve fibers. The change in color and consistence of the cord is due to inflammation, and not directly to the compression. The inflammation is not limited to the seat of compression, but it extends some distance above and below it. From the diseased portion of the cord ascending and descending degeneration takes place. In all cases great compression is attended with considerable inflammation, but slight compression, which usually gives rise to a mild form of inflammation, may set up severe myelitis. The rapidity with which the inflammation of the cord is developed is usually modified by the slow or rapid increase of pressure. Suddenly developed pressure always causes acute myelitis, and gradual increase of pressure, as a rule, gives rise to chronic inflammation, but in some instances subacute, or even acute, myelitis may result from gradually developed pressure. The microscopic appearances are those of myelitis, with increase of interstitial tissue and degeneration of nerve elements. In the early stage various cell formations take place, but later these may in part, if not entirely, be replaced by a reticulum of interstitial tissue. The nerve elements become inflamed and undergo degeneration, and "masses of myelin, granule corpuscles, and corpora amylacea" are seen. In a few instances all the nerve fibers at the seat of greatest compression are destroyed beyond any possibility of recovery; but fortunately such cases are comparatively rare. In the majority of instances, a large proportion of these fibers persist with narrowed medullary substance, and are capable of regaining, imperfectly it may be, their power of conduction, although surrounded by a great increase of interstitial tissue. The walls of the blood-vessels are thickened, and in some portions the caliber of a vessel may be found obliterated. The intensity of the inflammation gradually lessens the farther we go from the seat of compression, but ascending and descending degeneration of the destroyed nerve fibers takes place throughout their course in the cord. The cornua of the cord suffer, the ganglion cells degenerate more or less completely, and functionless interstitial tissue takes their place. The nerve roots that pass through the affected part are crippled by the pressure, and are further influenced by the inflammatory process. They become inflamed, interstitial tissue increases, and the nerve elements degenerate.

The symptoms of compression of the cord are modified by numerous and varying conditions, and those occurring on a level with the morbid process in the cord are so obscured by the nerve-root symptoms that it will be necessary to refer to these briefly, although we discussed them at some length in our former lecture in considering them in relation to the symptoms and diagnosis of caries of the spine. The involvement of the nerve roots abolishes the reflexes on a level with the morbid process. The spinal nerves whose roots are directly affected are the seat of pain which radiates throughout their distribution. The location of the painful nerves depends upon the position of the caries. The pain may be dull or sharp and neuralgic in character, encircling the trunk or extending down the limbs. When in the limbs the joints are often the princi-

* Two clinical lectures delivered at the Arapahoe County Hospital, September 22 and 29, 1894.

pal seats of pain, and become extremely sensitive and the skin over them hyperæsthetic. The pain may be intermittent or constant, with paroxysms of severe suffering. Sometimes tender points may be found along the course of the nerves. After the nerves begin to degenerate, anæsthetic areas develop, but these areas are still the seat of pain. Contractures of the muscles supplied by the affected nerves are rare, but more common when the morbid process is situated in the cervical region than when the dorsal or lumbar region is affected. Weakening and wasting of the affected muscles with electrical changes of degeneration are more frequent than contractures resulting from nerve-root involvement. Symptoms of irritation of the nerve roots usually precede the cord symptoms.

The cord symptoms, as a rule, are gradual in their development, although they may be acute or even sudden in their onset, and consist generally in impairment or abolition of the conducting functions of the cord at and below the seat of the lesion. As the dorsal region is the most common seat of compression of the cord from caries, paralysis of the legs is the usual form of paralysis. There is considerable variation in regard to the time of the occurrence of caries of the spine and the development of symptoms of compression of the cord. Bone disease may occur in childhood and compression of the cord not till adult life. More frequently the symptoms of caries antedate those of compression of the cord one or two years or a few months. In some instances the symptoms of each may appear about the same time, or compression of the cord may take place before disease of the bones has been suspected. In many cases there is no apparent exciting cause to precipitate compression of the cord, while in others a slight strain of the back, a blow to the spine, a fall, or exposure to cold precedes the development of compression of the cord in persons suffering from caries of the spine. The cord symptoms usually increase slowly, although sudden giving way of the bodies of the affected vertebræ may result in rapid compression. In some instances months or years may elapse after cord symptoms have manifested themselves before compression has reached the paralytic stage, but cases are recorded in which only a few weeks, days, or hours have been required after the first appearance of the cord symptoms before paralysis was complete in the parts below the spinal lesion. The cord symptoms are usually bilateral, although it is not uncommon for them to be more marked on one side than on the other, and in some instances the symptoms are well developed for months in one leg, while they are scarcely appreciable in the other.

The symptoms may be divided into motor, sensory, reflex, and trophic. In the majority of cases of compression of the cord the motor symptoms are more marked than the sensory. When the posterior surface of the body of a vertebra gives way before the anterior the spinal column arches backward, resulting in narrowing of the spinal canal by the processes of the vertebra projecting forward and impinging against the posterior surface of the cord; the sensory symptoms are usually more pronounced than the motor. It will be convenient for us to study the gen-

eral symptoms of compression of the cord regardless of the position of the morbid process, then consider special symptoms resulting from compression in the cervical, dorsal, and dorso lumbar regions.

Motor Symptoms.—The motor symptoms usually consist of gradually developed weakness of the muscles in the parts below the seat of the lesion, which may increase to more or less complete paralysis. In some instances, as we have seen, the paralysis is developed suddenly. When the paralysis is very gradual in its development, there may be no apparent disturbance of the bladder if the lesion is sufficiently removed from the lumbar enlargement so as not to involve this portion of the cord by the resulting inflammation. On the other hand, in suddenly developed paralysis from compression of any portion of the cord the functions of the bladder are always impaired. If the lesion is in the dorsal or cervical portion there will be "incontinence of retention" or an inability voluntarily to evacuate the bladder. This is often only temporary, unless the destruction to the cord is very great, when it may become permanent. Contractures of the affected muscles take place in lesions above the lumbar enlargement. The legs may be paralyzed before the arms when the paralysis results from compression of the cord in the cervical region.

Sensory Symptoms.—The sensory symptoms from compression of the cord are more variable than the motor. In some cases, with almost absolute paralysis of motion, the sensory phenomena may be fairly well preserved. In very severe compression of the cord at the stage of the disease when the morbid process most impairs its function, anæsthesia may be as complete as the motor paralysis. During the periods of the progress and decline of cord changes the sensory function is usually less involved than the motor. Pain is often a prominent symptom, and it may be felt in the legs when the morbid process is in the dorsal region. Its seat of intensity depends largely upon the position of the compression. When the latter is in the dorso-cervical region, the arms are the seat of pain. Late in the disease, when ascending and descending degeneration has taken place, pains may radiate around the trunk and down the limbs from nearly the entire length of the cord. In this stage of the disease, when a fair amount of motion has been regained, there are often decided ataxic symptoms, especially in the muscles of the legs. Painful impressions are often delayed several seconds.

Reflexes.—The reflexes are always abolished on a level with the cord lesion. Increase of the superficial reflexes, especially of the soles of the feet, is often a prominent symptom early in the disease. So commonly are the plantar reflexes exaggerated in compression of the cord that they possess some diagnostic significance in obscure cases of cord disease. When the morbid process is situated above the lumbar enlargement, and the latter is not involved by inflammation or degeneration, the deep reflexes below are exaggerated, and ankle clonus is usually present.

Trophic Disturbances.—Muscular atrophy is slight or pronounced in proportion to the severity of the cord affection. Bedsores rarely form except when the cord at the seat of compression is rendered almost functionless, or

when the lumbar enlargement is affected. Cystitis is not troublesome if the bladder receives proper attention, unless the lumbar portion of the cord is seriously damaged.

When the morbid process is situated in the cervical enlargement, the arms are affected as well as the legs. In the cases in which the paralysis and muscular wasting in the arms are due to pressure on the nerve roots, the arms are paralyzed before the legs; but if the paralysis is due to pressure on the cord, the legs may be paralyzed before the arms. The cervical muscles may be weakened so that it becomes difficult for the patient to support the head erect. All the superficial reflexes below are exaggerated early in the disease, and myotatic irritability in the legs is excessive and ankle clonus is pronounced. In severe lesions the patient loses control of the bladder. Anæsthesia, more or less marked, is present in the parts below the cord lesion. The arms, upper portion of the chest, and sometimes the cervical and occipital regions, are the seats of pain. Cardiac and respiratory involvement take place when the lesion is high up in the cervical region. The intercostal muscles are paralyzed, and if the diaphragm is seriously affected death takes place from respiratory paralysis. Any pulmonary affection is grave in compression in the cervical region of the cord—even a chronic bronchitis may prove fatal. The pupils and the vaso-motor apparatus do not become affected unless the sympathetic nerves or ganglia are affected. As a rule, there is no tendency to bedsores. Contractures of the leg muscles occur. If the dorsal region is the seat of compression, the arms, the heart, and respiration escape except in lesion of the upper portion, when the intercostal muscles may be paralyzed and the arms become secondarily affected from the extension of inflammation. The disturbances in motion, sensation, and in the reflexes in the parts below are the same as in lesions of the cervical region, with the possible exception that pains are often felt in the legs in compression of the dorsal portion of the cord. When the lumbar enlargement is compressed or becomes involved by extension of inflammation, paralysis of the bladder and bowel, with the tendency to the formation of bedsores, abolition of the knee jerks, flaccidity and great wasting of the paralyzed muscles take place.

Diagnosis.—The diagnosis of compression of the cord due to caries of the vertebræ depends upon the evidence of bone disease, nerve-root and cord symptoms. In each case other causes of compression than caries have to be carefully excluded. The first point to determine in a case presenting cord symptoms is whether the symptoms are due to compression of the cord or to other causes. After determining that the cord is compressed, we should endeavor to find the source of compression. The chief diagnostic symptoms of compression of the cord are the indications of irritations of the nerve roots, such as pains radiating from the spine, in the arms, round the trunk, into the groins, or down the legs, depending upon the position of the morbid process; the evidence of bone disease, such as localized pain and limited tenderness of the spine; and disturbances in the functions of the cord, as motor impairment, sensory changes and alterations of the reflexes, especially increased plantar reflexes,

in the parts below the seat of the spinal lesion. The affections with which compression of the cord is most likely to be confounded are transverse myelitis, medullary tumor, hæmorrhage in the substance of the cord, and syringomyelia. In primary transverse myelitis there are neither nerve root nor bone symptoms, and in those cases of chronic myelitis attended with nerve-root symptoms the latter are secondary to disturbance in the cord. A medullary growth may give rise to prominent nerve root symptoms, which are often unilateral at first, but no bone symptoms are present until late. Besides, trophic disturbance is usually much more prominent in medullary growths than in compression, and evidences of growths in other parts of the body are frequently present in tumor of the cord. The history of sudden onset and the absence of nerve-root and bone symptoms are sufficient to prevent mistaking hæmorrhage in the cord substance for compression. Syringomyelia is a condition in which the cord substance is compressed from within outward instead of from without inward, and presents some symptoms in common with the ordinary form of compression of the cord; but the absence of temperature and pain senses, while tactile sense remains fairly good, the absence of bone and definite nerve-root symptoms, with the prolonged duration of the disease, make the symptoms of syringomyelia quite distinct from those of the condition under consideration.

Having satisfied ourselves that the cord is compressed, our next duty is to ascertain the nature of the cause of compression. Is it due to meningitis, especially chronic internal pachymeningitis, to tumor in the spinal canal or bone, to an eroding aneurysm, or to caries? In myelitis secondary to pachymeningitis the nerve-root symptoms extend over a much greater vertical area of the body than in compression due to bone disease. Bone symptoms are absent, and a cause of the meningitis can usually be traced. A tumor in the spinal canal gives rise to no bone symptoms until late; unilateral nerve-root symptoms are common and do not become bilateral until cord symptoms develop; therefore, compression of the cord manifesting itself after bilateral root symptoms would in all probability not be due to a tumor in the spinal canal. A tumor in the bone, like a growth in the canal, is usually found secondary to growths in other portions of the body, except in cases of injury to the spine. Compression of the cord in children and young adults would be against tumor in favor of caries. Nerve-root pain, especially on movements of the spinal column, is greater in cases of tumor than in caries. The presence of an eroding aneurysm could be determined by a careful examination. Points in favor of caries as the cause of the compression are; the usual nerve-root and bone symptoms, the youth of the patient most commonly (although caries may occur at any age), tuberculosis, and the absence of symptoms significant of other causes of compression.

The course and prognosis of compression of the cord from caries of the spine are modified by the curability of the bone disease, the extent of the compression, both from displaced bone and thickening of the dura, the rapidity of the development and the extent of the cord lesion, and the amount of degeneration in the cord. While the progress

of compression of the cord may, to some extent, be more or less independent of the progress of the bone disease, yet the two when they are present, the former as a sequential lesion of the latter, are conveniently studied together in relation to the course, prognosis, and treatment. Caries of the spine, in its early stage, before the disease has made much progress, under prompt and efficient measures for its relief, is exceedingly amenable to treatment. After the disease has advanced sufficiently for the bone substance to begin to break down and pus to form, with not infrequently an undermined condition of the health, the probable duration and termination of the disease become uncertain. In a few cases pus continues to form for years; in time the downward progress is arrested, and the patient makes an incomplete recovery. On the other hand, death may be caused by prolonged exhausting discharges and other depressing influences. It is rarely that caries is the direct cause of death, but such a termination is usually the result of myelitis secondary to the bone disease. Carious bone may heal and union occur between the affected parts. In some instances caries becomes quiescent for a time, to be followed by periods of increased activity. In some cases the myelitis is out of proportion to the apparent degree of pressure, so that as inflammatory action subsides in the cord, the paralytic and other cord symptoms may improve, although the condition of the bone remains practically the same.

It is impossible for us to determine with certainty the extent of the pathological changes that have taken place in cases of paraplegia, therefore anything like definiteness in prognosis is equally impossible. Paralysis, motor and sensory, may persist, but more commonly the sensory symptoms, except the pain, lessen or pass away and motor paralysis remains with contractures of the leg muscles when the morbid process is above the lumbar enlargement, and flaccid paralysis of the legs when the lumbar enlargement of the cord is involved. Under such conditions life may be prolonged for several years, but often cystitis, bedsores, kidney disease, or tuberculous deposits in other parts of the body put a termination to life. Children give the best prognosis in caries and compression of the cord, young adults stand next, and the degenerative period of life furnishes the gravest. But we must remember in adults that paralysis which has been complete with extensor contractures for more than a year may entirely pass away. Flexor contractures lend gravity to the prognosis. After recovery has taken place it is, as a rule, permanent, but relapses are readily produced by injuries to the spine or exposure to cold or damp, and even in some cases relapses occur without apparent cause. Gowers states that persons who have suffered from caries during childhood without apparent injury to the cord may develop symptoms of degeneration of the lateral columns later in life. Caries and damage to the cord situated high up in the cervical region become especially dangerous on account of the tendency to respiratory paralysis. In the lumbar region, cystitis, bedsores, and other profound trophic disturbances usually result and add gravity to the prognosis. When the morbid process is situated in the dorsal region the

chances of recovery are the greatest. In those cases in which absolute paralysis develops rapidly after symptoms of myelitis begin, the prognosis is more favorable than where it takes place more gradually, because in the former instance inflammation of the cord, which may subsequently subside, has had more to do with the paralysis than the pressure from bone displacement. When sensation is preserved, the chances of recovery are greater than when it is abolished, although motor paralysis may be complete.

In the light of prognostic indications of caries of the spinal vertebræ followed by compression of the cord, what will be the probable result in the case we were engaged in studying at our last clinic? A year ago the prognosis seemed hopelessly grave, but to day the anæsthesia has passed away almost entirely; she is able to use both legs and to bear her weight on them; the contractures of the leg muscles, which were extensor in character, are slight, and the progress of the bone trouble has been arrested with union between the inflamed surfaces, so that we can now predict that she will be able to walk in the course of a few months, and in time may have fair use of her legs. The case shows that the most desperate conditions in caries of the spine and compression of the cord may be more or less completely recovered from.

Treatment.—Although the treatment of caries of the spine comes under the province of the surgeon, yet every physician should be familiar with the general management of these cases, especially as timely and proper treatment is of so great importance. In the early stage of the disease, before symptoms of breaking down of the bone have become manifest, the mistake of allowing the patient to be on his feet is often made. Since the plaster jacket properly adjusted affords such excellent support, many trust to this to the exclusion of rest and local treatment. It seems to me that this may be another error. It is a safer method to put the patient at rest in the recumbent posture until all signs of irritation in the bones and surrounding structures have subsided, then apply the plaster jacket and allow a moderate amount of exercise on the feet. While the patient is confined to bed local treatment is very efficient in lessening the inflammation and shortening the duration of the active process. The most effectual is with the actual cautery, at white heat, applied over the diseased bone. My experience is that a rather large or deep eschar produced by the cautery is more effectual than repeated light burnings of the skin. The jacket should not be applied until all tenderness and pain in the back have subsided. In the meantime everything should be done to maintain the patient's nutrition by the administration of cod-liver oil and iron, together with an abundance of the most nutritious food. In cases further advanced, so that the inflamed bone is beginning to break down and pus to form, or in which cord symptoms have gone on to paralysis, rest in the recumbent posture will be necessary for months, and the nutrition must be most zealously looked after and kept up; but the same active measures in the way of counter-irritation by means of the actual cautery will rarely be necessary. Some advocate the hot iron in all stages of caries of the spine, but my experience has been that it is most potent for good before

much destruction of bone has taken place or the functions of the cord have been seriously damaged. In the suppurative stage of caries, or when absolute motor paralysis, with anæsthesia, has occurred, the cautery, if used at all, must be employed lightly, and care should be taken not to form an open sore in the anæsthetic area, lest a troublesome and exhaustive bed sore be the untoward result. While the plaster cast is an excellent aid in the treatment of caries of the spine, it does not seem safe to allow a person to trust to this for support so long as decided inflammation exists in the bones. The same care and vigilance necessary in the treatment of myelitis in guarding against bedsores, cystitis, and kidney complications are demanded in compression of the cord. After the bone disease has been arrested, which is the first object to be achieved in cord disease from caries, the remainder of the treatment consists in endeavoring to prevent a relapse of the bone trouble, and in dealing with the nervous affection as one of subacute or chronic myelitis. The former object is attained by means of the plaster jacket for a year or more, maintaining the best possible health of the patient, and preventing injuries to the spine from various causes. The latter is aided by preventing contractures, employing massage and electricity, and guarding against complications.

Original Communications.

STRABISMUS, OR CROSSED EYES.

HOW SHALL WE TREAT THEM?*

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ALL physicians may at times be called upon for an opinion in reference to the convergence of the eyes of their little patients, so I have thought that the suggestions of this paper may be of service to the society; and since the discussions of the profession in reference to squint are, according to my observations, somewhat uncertain and misleading, I therefore wish, if possible, to correct them from my own clinical experience.

The thoughts contained in this paper were most forcibly suggested to me by the following quotation from Dr. W. B. Johnson's excellent article on Amblyopia from Suppression of the Visual Image, which paper was read before the American Ophthalmological Society in the summer of 1893.

Dr. Johnson says: "The natural tendency of the visual centers is to relieve themselves of the diplopia, which is an offending condition, and relief is attained by a gradual loss of physiological sensibility through psychical exclusion of the vision of one of the eyes. The selected eye may or may not have diminished visual acuteness due to a greater refractive error than the fellow eye, each eye, however,

generally having a hypermetropia of a greater or lesser degree, which is almost always present, and is undoubtedly an important ætiological factor in the production of convergent squint."

I have reported his words thus fully, as I find here two very interesting questions to answer: First, Is there, as a rule, loss of physiological sensibility through psychical exclusion of the vision? and secondly, Is hypermetropia an important factor in the causation of squint?

In discussing this subject I wish to present some views of my own in relation to crossed eyes from my observations both in private and clinical work; not that they may differ very materially from those previously accepted, but that I may separate the cases of convergent squint, when there is no paresis of the external muscular apparatus, into two great classes—operative or non-operative. In these two divisions we may place all the cases that come under our care and treatment, thereby deciding the relative value of glasses or of an operation.

There seems to be an impression among the profession that the vision of amblyopic eyes can be restored with binocular fixation under certain conditions. And the question arises, Is this true in all cases, or only in a certain number, or under certain conditions of refraction? It seems to me that if this fact can be established in any one case, then it should hold good in all. In answering this we shall also find the answer to the quotation above stated.

Fuchs, in the last edition of his work, gives the ætiology of squint as follows: "Strabismus is, therefore, the result of the combined action of two factors—diminution of the visual power of one of the eyes and a pre existing disturbance of the muscular equilibrium. According as the latter factor consists in a preponderance of the internal or the external ocular muscles, a convergent or divergent squint is produced." The same ideas have been advanced by Stilling and also by Swan Burnett, and these I propose to follow in a certain measure to be explained.

Leaving out, then, all pathological conditions and considering these questions as they relate to squint *per se*, as usually seen in the office and at the clinics, let us define the conditions as indicated in our cases.

I would first define amblyopia as an unknown condition occurring generally in the non-developed or hyperopic eye, in which, without any visible evidence of an abnormal condition, there will be a want of power in the retinal elements, either existing in the nerve fibers or its terminal elements in the retina, and by which they can not appreciate small images formed on the retina and thence to be conveyed to the brain.

Consequently there is no fault in the dioptric media, causing diminished visual acuteness due to refractive error, nor is there psychical exclusion of the vision, but that the amblyopia is congenital. Why this condition, as above stated, should occur only in the one eye and not in the other I am unable to explain. It is simply a clinical fact. On the other hand, if we do have a condition of perfect visual acuteness in both eyes, but that the rays of light can not be focused on the retina without excessive accommodation—and by that condition the stimulation of excessive

* Read before the Medical Society of the County of New York, May 28, 1894.

convergence (relative hypermetropia)—then we shall have one eye converging more than its fellow. Now, we have suppression of vision in the squinting eye that in time will produce diminished vision, due either to a refractive error or to psychical exclusion; but this may be and will be restored as soon as the demand for excessive convergence and accommodation is removed by the correction of any refractive error by glasses.

There can be no diplopia under these conditions, because, while the image is perfect in the fixing eye, the rays from the object must fall upon the peripheral parts of the retina in the squinting eye, there forming only a diffused image that will be suppressed. Again, the rays which fall upon the macula coming from a plane different from that of the object or point to which the dioptric apparatus may be adjusted, these rays can only form a diffuse image that is not conveyed to the visual centers.

Hence there is no stimulation of the physiological functions of the nerve elements at the macula for certain periods of time, and consequently, when at first this function is resumed by the usual tests, the vision will be found reduced, but will be rapidly restored under proper conditions.

In the ætiology of squint I think these explanations may suffice; but is there a disturbance of the muscular equilibrium? Or is the squint due simply to the normal conditions of adduction and abduction? And does not an exception to the rule cause divergent squint?

Let us first divide our cases into two great classes or divisions, according to their observed frequency: First, squint associated with congenital amblyopia, and, secondly, squint due to relative hyperopia, with *temporary* suppression of the visual image.

In these two classes I think we can readily place all our cases of squint, and if so, then the method of treatment, either operative or otherwise, will be readily and clearly indicated from the beginning to the final parallelism of the optic axes. If we take up our first class of cases I think we can at once answer the question as to the ætiology. I do not believe hypermetropia is in any way an ætiological factor in the causation of this squint, though always associated with it.

Let me illustrate this: A child is born of perfectly healthy parents, normal in all respects, the visual axes perfectly parallel, and the power of the external muscles properly proportioned. But there is present a condition of amblyopia that, I believe, is due to a want of development in the retinal elements and not to a central cause, as these amblyopic eyes can appreciate and do know large letters. Assuming this condition, associated with the normal power of the lateral moving muscles, as proposed in my last paper, *The Power of the Interni*, in which I claimed that the power of the interni was four times stronger than the externi, and with the "guiding sensation" almost entirely absent from the amblyopia—then, I repeat, assuming these two conditions, we find one eye begins to turn inward at periods ranging from one week to three or four years after birth. Is this not due to the preponderance of normal power in the muscle of adduction? But to proceed, in time the squinting

eye becomes fixed, with the cornea toward the inner canthus, and when the child is old enough to answer questions we find the vision very materially diminished in the convergent eye.

As time goes on the child knows and names its letters properly; then the vision is found to be normal— $\frac{2}{20}$ in the fixing eye, but is only about one tenth, or $\frac{2}{200}$, in the other eye.

Now, if we find the above conditions—the child squinting when only one week old—surely there can be no convergence with accommodation when the eyes are used, yet for all this one eye turns inward. Must not these conditions exist? Do we not have an amblyopia in the squinting eye, or has there been a suppression of any images when at five years of age we find the vision only $\frac{2}{200}$, and waiting five years longer it is still the same $\frac{2}{200}$? Can any one claim that there has been a loss of physiological sensibility in the eye to reduce vision from the normal to $\frac{2}{200}$ in the first five years, and yet after that, or in the next five years, there has been no further loss of sensibility, as the vision remains the same? Or may we go still further and say, If the child never has an operation the squint remains until the age of thirty years, and then the convergence disappears, the eyes are parallel, and remain so, yet we still find the vision $\frac{2}{200}$? Has all the loss of vision taken place in the first five years and remained stationary since?

We have all seen these cases. I have examined many of them, and feel convinced that the perceptive power of the retinal element has been the same since birth, and that there has been no loss of physiological sensibility.

Again, if the vision is reduced in the first five years the eye ought to suffer still further loss of visual power, and yet we find exactly the reverse in all our cases.

In this class we can surely exclude amblyopia ex anopsia, and conclude that the child has been born with a retina in which there is loss of power to perceive retinal impressions for small objects and convey them to the visual centers.

They will not be improved by the use of glasses or by an operation, except in reference to the cosmetic effect.

Granting all this, and associated with it we have the normal power of the straight muscles in adduction and abduction, and taking from the eye its power of fixation or guiding sensation, due to the amblyopia, then in time this eye must turn in the direction of the most powerful muscle—namely, inward—but will again resume its proper position when forced to fix on an object, by cutting off the stimulation to fix in the other eye with a screen, called concomitant squint. This is not a pre-existing disturbance of muscular equilibrium (Fuchs), nor is the squint due to the eyes assuming a position of rest, as advocated by Stilling and Swan Burnett, but rather is due to the normal power of adduction over that of abduction when the retina is deprived of its guiding sensation by amblyopia.

Hence I do not fully accept the views of the writers quoted above, as I believe a position of rest is found when the eyes are directed to a point fifteen feet distant and about fifteen degrees below the horizon; but I assert that the

more powerful muscle—the internal rectus—has overcome its antagonist and remains in a condition of tonic contraction, thereby turning the eye inward, or outward, should the preponderance of power be in the external rectus. Since writing the paper I have examined some cases of amblyopia without squint, and have found the externi strongest or equal to the interni.

If we continue the history of our cases still further, the eye turning inward, the internal rectus remains contracted until about the twenty-fifth year, when the convergence disappears. Why? Because the power of the interni has now become so reduced from continued contraction that it equals that of the externi, and the eye resumes its proper position. Now the amblyopic eye will follow its fellow-eye, but the vision remains the same as in childhood. We may, then, conclude that those cases under our first class are born with an amblyopic eye, and that the normal power of the internal rectus, deprived of the psychical stimulation of the guiding sensation, is the primal and chief cause of the strabismus. These cases can not be corrected by the use of any glasses, but must be operated upon by a complete tenotomy just as soon as the eyes can be tested in reference to their visual power. Until an operation has been performed, glasses or exclusion of the eye will be simply useless; but after the operation the glasses may be used to relieve any strain on the accommodation. The hyperopia was not a factor in the causation of this class of strabismus.

Let me now illustrate our second class of cases. We find a child born with normal eyes, both in reference to vision and the power of the straight muscles, but having a hyperopia of two to four dioptries, with possibly weak accommodation. Now, we soon notice that as it begins to play with small toys or use the eyes at the near point, it begins to turn one eye inward at times, called periodic squint. This continues until the child is five or ten years old, when one eye remains constantly turned inward, called fixed squint.

Now, on testing, we find a loss of visual power in the retinal elements, or a loss of “physiological sensibility through psychical exclusion.” The vision is naturally diminished in one eye from disuse, the so-called amblyopia ex anopsia, simply from suppression of the visual images in the visual centers. But not amblyopic, because the retinal sensibility still exists and *will be* readily restored by forcing the squinting eye to be used by stopping the relative action of accommodation and convergence by atropine and correcting the refractive error by glasses.

We have here, under these conditions, what Donders first called relative hypermetropia; so let us see how we may explain it more fully.

We know that the centers for accommodation and convergence are very closely associated in the oculo-motor centers, beneath the aqueduct of Sylvius and the floor of the fourth ventricle; and as the child begins to use the eyes to accommodate the vision to a point, say twelve inches distant, it can not overcome or correct its hyperopia. To do this, therefore, the child requires a greater power of accommodation. The stimulation for this condition is conveyed to the cerebral centers, so stimulating the power of conver-

gence by the association of these centers, and by an excessive convergence the child soon learns to see clearly at the distance of twelve inches. In other words, by a convergence of the visual lines to a point six inches distant, the child attains sufficient accommodation to see clearly at twelve inches, and the rays of light from the object will form a clear image in the retina of the fixing eye. Its fellow-eye is now found to have its visual line directed to a point much nearer than the object or squints inward.

Assuming, and in fact knowing, this to be the condition present, what becomes of the images formed on the retina of the squinting eye? First, the image of the object falls upon the least sensitive parts of the retina—namely, the inner peripheral part, there forming an indistinct image; secondly, the image, whatever it may be, that is formed at the macula, or most sensitive part of the retina, *is not in focus*, the rays coming from a far different plane than the object, and again we have an indistinct image.

Consequently the visual centers will readily suppress these indistinct images formed on the retina, and only single distinct vision is carried to the visual centers. We may now say there is a loss of vision from “physiological sensibility through psychical exclusion” in the squinting eye, but we must remember that the sensitive retinal elements are still the same and may be rapidly developed to their former standard at birth as soon as the eye is again used under proper conditions.

Is this condition amblyopia ex anopsia, or is it only temporary suppression of the visual image?

Test these cases, when first seen, after they have suppressed the image in the squinting eye for several years, and we will find the vision very much reduced—about $\frac{2}{3}$ or less. Now use a mydriatic, as atropine, to complete paralysis of the ciliary muscle, correct the existing error of refraction, and in a few weeks we will soon find a return of the previous normal power to see and the vision becomes $\frac{2}{3}$, or normal. We have corrected the relative hyperopia, the “guiding sensation” reasserts itself, the squint has disappeared.

The normal muscle balance remains, and in time, should the accommodative power become stronger by the use of glasses, they may be laid aside without a return of the convergence, and an operation has not been necessary to correct the squint.

Under these two classes I feel we can place all our cases of strabismus, putting all pathological conditions in the first class, and by them we can explain all and every phenomena that is observed.

It is well known that persons are born with amblyopic eyes and yet do not squint—both visual lines are properly fixed on the object; they have no asthenopia, no convergence, nor does the vision in the amblyopic eye become better or worse. No; the visual power remains the same through life, yet they do not squint, because in these cases I believe we have an insufficiency of the power of the interni (well shown in a case lately examined) and not the normal power of the lateral moving muscles, of four to one, so as to cause the amblyopic eye, with its

loss of the guiding sensation, to turn inward in the direction of the powerful muscle acting against its weaker antagonist.

In conclusion, if we accept these views we may decide that in the first class amblyopia is simply and positively the cause of the convergence of the visual axis and not a consequence of that condition; the lesion is ocular and not central, nor can it be restored. That in relative hyperopia we may have a temporary suppression of the visual image, not the so-called *amblyopia ex anopsia*, and that we may order our treatment of all our cases from a standpoint that will at once be indicated for the correction of this deformity of the position of the eyes.

We will not please ourselves with the idea that we have restored useful, perfect vision in an amblyopic eye, but that in the first class we have corrected a cosmetic deformity by an operation, and in the second class we have restored a dormant physiological sensibility of the retina by the use of atropine and glasses.

I will not detain you with a report of my cases, both in clinical and private practice, that I have observed in the past few years, particularly since I have noted the discussions of the restoration of vision in amblyopic eyes in the medical journals; but I wish to state that a careful study of all my cases and of those reported, when the histories have been at all accurate and complete, have only tended to convince me that the suggestions contained in this paper *are correct* and will bear the closest investigations.

The other evening I was asked by a member of this society when I would operate in a case of strabismus convergens? and I would answer that question simply by stating, first decide to which class the case belongs. If to the first class, then operate at any time—at five years of age is the best—while if to the second class, then you must use the atropine and glasses even at two years of age, as reported by Savage; and you may correct the convergence without an operation in the majority of cases. But this means failing, then you must operate after a fair trial of the glasses for six months. I do not believe we shall ever have a divergence after a careful operation in the first class, while after an operation in the second class, by so altering the normal balance of power, we may have that unfortunate occurrence of the operated eye turning the other way—divergence.

In presenting these views I do not wish it to be understood that there may not be other causes for the production of convergent squint, but we may place under the same conditions as I have shown in the first class all cases that present any pathological conditions in the dioptric apparatus, the retina or vitreous, for in all these cases we may have the normal balance of the lateral moving muscles and the same loss of the guiding sensation that we know must exist in amblyopia.

163 EAST THIRTY SEVENTH STREET.

The Massachusetts Registration Law enacted in June of the present year has gone into operation, and about twelve hundred physicians have already complied with its requirements.

AN INTERESTING CASE OF ECTOPIC GESTATION,

OF TWELVE MONTHS' DURATION AND WITHOUT
RUPTURE OF THE SAC.*

(Occurring in the practice of Dr. G. K. Dickinson, Christ Hospital,
Jersey City, N. J.)

By JOSEPH M. RECTOR, B. A., M. D.

CASES of ectopic pregnancy are often brought to the notice of the medical profession varying in duration of time from several weeks to as many months; but not so frequently do we receive reports in which the gestation has advanced to its full natural period of time, and the termination of the pregnancy becomes necessary because of the constantly increasing pathological symptoms.

The Fallopian tubes, with their peritoneal, muscular, and mucous coats, lined throughout with columnar and ciliated epithelium, serve their purpose in the economy of Nature by conveying the semen of the male to the ovary and carrying the ovule of the female to the uterus; it is in the existence of their many inflammatory affections, their abnormal new growths within and the pressure of tumors from without, that interference with their physiological function occurs and renders pathological conditions possible. Disease desquamating the mucous coat of its ciliated epithelium places the surface of the tubes in a condition exactly similar to that of the uterus. Lawson Tait also says: "The function of the ciliated lining of the Fallopian tubes is to prevent the spermatozoa entering them and to facilitate the progress of the ovum into the proper nest." With such views one can readily see that the spermatozoids would reach the ovum, which has now become stationary in the tube, impregnation would follow, and adhesion to the tube wall be as possible there as in the cavity of the uterus.

As regards the general course of ectopic pregnancy, authorities mostly agree, and it is only in the classification of the varieties and the length of time to which such different conditions exist that discussion and argument are invited; but having adopted Tait's views relative to the physiological process of impregnation and the normal situation for the fertilization of the ovum, I also accept his views in the classification of the varieties of ectopic gestation—viz., that all cases at first are tubal, and such varieties as are met with are caused from this by a primary rupture.

If I may be allowed again to cite Dr. Tait: "Ectopic gestation in the free portion of the tube infallibly involves rupture at some part of its progress before the fourteenth week, in fact, I may say the twelfth week, for out of an enormous number of specimens I have examined, I have entirely failed to satisfy myself that rupture had been delayed later than the twelfth week, and I have seen it as early as the fourth week of gestation." In this case which I am about to report there were no early symptoms of pain or hæmorrhage, nor any pathological condition which

* Read before the Hudson County, N. J., District Medical Society at its October meeting.

would have caused the patient to have sought medical advice; the inference from such circumstances would be that a very early rupture had occurred, and instead of passing into the peritonæum, the impregnated ovum had escaped into the cavity of the broad ligament and there had developed during its period of viability, remaining as a lithopædion until an operation relieved the patient of her bodily suffering.

Among the statistics bearing on this subject I have found that—

Bandl reported 3 cases of tubal pregnancy.

Hecker reported 45 cases: 26 with rupture in the first month, 11 in the third month, 7 in the fourth month, and 1 in the fifth month.

Puerch reported 100 cases: 98 with rupture of the tube, 2 with rupture of the vein of the broad ligament; 1 patient recovered.

Kiwisch reported 100 cases of extra uterine pregnancy, with 18 recoveries.

Thomas reported 17 cases of extra-uterine pregnancy: 2 interstitial, recovery in both; 7 tubal, recovery in 1; 8 abdominal, recovery in 5.

Spiegelberg reported 1 case of mature tubal pregnancy.

Mrs. McG., aged thirty-nine years; mother of one child seven years old; a domestic by occupation; family history negative. Her childbearing history from the birth of her first child to the present time is entirely negative. She has lived at all times with her husband. She gives no history of any abortion or miscarriage. Her monthly periods from the birth of her child until August, 1893, were perfectly regular, and no pathological condition of the uterus and its appendages has been noted.

During the month of August, 1893, Mrs. McG. has said that her monthly sickness was similar in all respects to her accustomed flow; in the menstruation of September it seemed to her that the amount of blood lost was somewhat less, while in October her flooding had diminished still more. She gave no particular heed to this circumstance, as no other disturbing conditions had presented themselves, until in November, no sign of menstruation having appeared, she then concluded that she was pregnant.

In December she first felt foetal life; considerable abdominal enlargement was noticed; her breasts continued to increase in size, milk was present, while such other remaining symptoms as a mother would recognize had appeared from time to time. No physician had seen her up to this moment.

In January of the present year she received a fall, striking with great force upon the abdomen. Although this accident gave rise to no visible signs of injury, and yet anxious because of her safety, she consulted her physician, and when his examination had been made, he pronounced her to be pregnant.

Foetal life continued to be active until May; her appetite was good; she slept well, and no constitutional symptoms were present. Her pregnancy continued on with its usual train of symptoms, and at no time was there any sign of the oncoming of labor, nor was there any casting off of a decidual membrane. In July foetal movements ceased, the breasts began to atrophy, until, at the time of operation, no mammary enlargement was to be seen; the milk, which was before present, continued to diminish until it disappeared entirely; the abdomen diminished in size because of the shrinkage of the abdominal tumor; the appetite was lost, emaciation rapidly increased, while at this time sixty pounds of flesh had been lost.

Dr. Dickinson was called to see the case; he advised the giving of an anæsthetic that a thorough examination might be made.

After dilation of the cervical canal and the introduction of the finger pushed well up to the fundus, he found the uterus to be empty and its cavity to measure from three to four inches in depth; the womb had risen forward on the os pubis; a large, thick cyst filled the pouch of Douglas and extended as far up as the free border of the ribs; the abdomen was well pushed out and gave the appearance of containing a large, ovoid mass; slight fluctuation was present, and to the examining hand was imparted the sensation of a solid body being contained within the cyst. Ballotement was imperfect. The diagnosis of ectopic pregnancy was then made and an early operation advised.

The patient was brought to Christ Hospital in this city, and Dr. Dickinson, assisted by Dr. J. J. Baumann, performed the necessary laparotomy.

When the abdomen had been rendered aseptic, an incision was made in the median line and the cavity of the peritonæum laid open; a large ovoidal mass then presented itself, of a dark-brown color and a semisolid consistence; at the inferior extremity and anteriorly could be seen the slightly enlarged uterus, with the broad ligament, which extended from the fundus of the uterus, and at this point measuring from three to four inches in diameter, continued to expand until its fibers were lost entirely upon the anterior surface of the tumor. Passing off to the left was the left tube and ovary, while on the right side the perfectly intact tube and ovary were found; there were no adhesions present except at the postero-inferior extremity of the mass, where they seemed to bind down the tumor very firmly into the cavity of the pelvis.

The sac, which was bloodless and had already begun to necrose, was punctured and about two pints of a chocolate fluid escaped; a long incision was made on the anterior surface, the cut edges were retracted, and the tumor proved to be a full-term female foetus in a stage of progressive maceration.

The length of the foetus was nineteen inches and a half; the circumference about the chest, twelve inches; the circumference about the pelvis, nine inches; the biparietal circumference of the head, twelve inches; the weight of the foetus, six pounds; the length of the umbilical cord, twenty-four inches.

The placenta was situated at the upper posterior corner of the sac; its diameter was eight inches, its circumference was twenty inches and a half, and its weight was two pounds.

The external covering of the sac was composed of peritonæum which was continuous with that of the uterus; its internal covering was mucous, and between the two layers was mostly fibrous tissue with a few scattered muscle fibers.

The sac was dissected well down into the pouch of Douglas and its liberation was accomplished with great difficulty because of the necrotic condition, and in separating the cyst from its sessile attachment at the fundus of the uterus it was necessary to cut into the muscular layer at this part of the organ.

The entire operation, from the moment of the incision into the abdominal wall until the closing of the wound, lasted an hour and thirty minutes.

There was some shock following the operation, the temperature was slightly elevated, yet for the twenty-four hours immediately following the operation her general condition was good. On the second day the pulse became rapid and feeble, the patient began to sink, and continued to do so until on the third day she died.

At the autopsy it was shown that the cyst had been nourished by the uterine artery and three smaller arteries, and by mishap, in tying one of these vessels, the left ureter had been included in the suture.

NASAL POLYPUS: ITS ASSOCIATION WITH ETHMOIDITIS AND ITS TREATMENT BY RESECTION OF THE MIDDLE TURBINATED BODY.*

By W. E. CASSELBERRY, M. D.,

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THE analysis of forty cases of nasal polypus, drawn from private practice, which will be outlined in this essay, confirms the view which I have advocated in previous papers that nasal polypus is not a primary or independent affection, but that it is a symptom, or at least a concomitant, of other nasal maladies which stand to it in the relation of cause and effect. This fact, however, should not lessen our efforts to elucidate the pathologic relationships of polypus, since thereby we will not only acquire more intimate knowledge of the underlying conditions, especially the various forms of ethmoiditis, but will also be led to devise more effective methods of treatment.

In 1888, in a paper on Nasal Myxomata read before the Chicago Medical Society, I advised a vigorous surgical treatment, having for its object, first, access to and then eradication of the actual seat of attachment. Zuckerkandl's† researches on cadavers were summarized, by which he demonstrated that two thirds of all nasal myxomata originated from the middle meatus beneath the middle turbinated body, and that approximately two thirds of this number took origin from the edges of the hiatus semilunaris, which is a crescentic opening into the infundibular space whose upward and downward continuations enter, respectively, the frontal and maxillary sinuses, and which is located high up beneath the middle turbinated body.

In Fig. 1, which is accurately drawn from a divided skull, the middle turbinated body has been broken and turned upward, in order to disclose the hiatus semilunaris and bulla ethmoidalis.

In that paper it was recommended that hypertrophied inferior turbinated bodies be reduced to a normal size by cauterization, in order to facilitate the transmission of light and the passage of instruments to the seat of polyp growth, and also by the restoration thus of proper nasal drainage to prevent damming up of mucopurulent secretion in the middle meatus.

For the same reasons, septal excrescences, so frequently present, were to be removed. Meanwhile, as opportunity offered, the myxomata were to be carefully snared off close to the base by means of a cold wire snare, when, in some instances in which sufficient space existed, it would be found possible to insinuate a slightly curved cautery point electrode beneath the middle turbinated body with which to destroy the actual seat of attachment. Further experience taught, however, that there were many cases in which this latter procedure was inadvisable on account of the tendency

to the formation of adhesions, and to the production of a septic eschar in a circumscribed location. Recently I have substituted satisfactorily curetting of this area for cauterization. A small but firm and sharp curette is insinuated upward beneath the middle turbinated body, in the direction from which the polyps proceeded, and their attachments, especially the borders of the hiatus and the bulla ethmoidalis, are well scraped.

In 1891, in a supplementary paper before the American Laryngological Association, I advised, as part of the radical treatment of nasal polypus, in certain cases in which the polyps emanated from the region of the hiatus semilunaris, the removal of the antero-inferior part of the middle turbinated bone in order to facilitate access to the actual points of development. Additional experience with this operation has but confirmed its utility and demon-

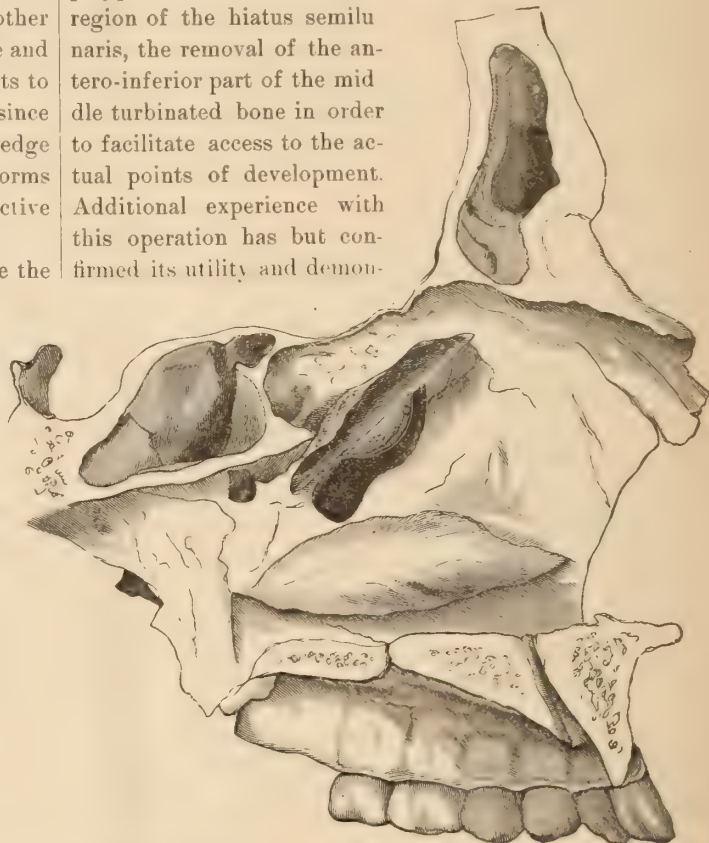


FIG. 1.—Representing the outer wall of the left naris with the middle turbinated body turned upward to show beneath the hiatus semilunaris, to the edges of which polyps are frequently attached.

strated its harmlessness, so that it will presently be referred to again more in detail. It was pointed out that the middle turbinated body, a process of the ethmoid bone, was rarely itself in a healthful condition in these cases; that it was often enlarged, or degenerated, or in a cystic state—a phase of the subject which it is desired to amplify in the present paper.

Through close observation of individual cases over prolonged periods, aided by the wider field for study of the deeper parts which is afforded by the operation of resection of the middle turbinated body, it has become evident that nasal polypus is usually a symptomatic manifestation of a form of degeneration of the ethmoidal mucoperiosteum, which frequently involves not only the middle turbinated bone, but also to some degree the ethmoid cells, and which for convenience is designated as ethmoiditis.

As a reminder of the scope of the various forms of

* Read before the American Laryngological Association at its sixteenth annual congress.

† *Anatomie der Nasenhöhle*, pp. 64 et seq.

ethmoiditis I would refer to the classification formulated by Bosworth,* but without intention of committing myself to its limitations: "(1) Extracellular myxomatous degeneration, the disease being limited to the middle turbinated body; (2) intracellular myxomatous degeneration, in which not only the middle turbinated body, but also the ethmoid cells had undergone myxomatous degeneration; and (3) purulent ethmoiditis, which may or may not be associated with myxomatous degeneration of the ethmoid, but which usually is associated with nasal polypi."

In fact, any or all parts of the ethmoid bone may be primarily affected by this process, which is serious enough in any stage, but which, if it be permitted to assume the suppurative type, becomes a most formidable affection. The deeply placed anfractuous ethmoid cells are difficult to drain, and infection of the maxillary, frontal, and sphenoidal sinuses is very liable to occur. Cases of exophthalmia with loss of sight from the pressure of empyema of the ethmoidal and sphenoidal sinuses have been reported by Dr. Hermann Knapp,† in which he was compelled to operate from the orbit. Fatal termination by infection of the cerebral meninges must also be regarded as among the possibilities in such cases. Mention is made of these points because it will appear from the cases reported as typifying the various forms of associated ethmoid disease that polypus is commonly one of the earliest prominent manifestations of ethmoiditis, and that when present the case should not be dismissed with a simple snaring as adequate to the occasion, but that it should be viewed as at least suggestive of a developing disorder which is liable to culminate seriously unless controlled. Furthermore, the treatment advised, especially resection of the middle turbinated bone, in addition to its efficacy for the polyps themselves, should be regarded as a prophylactic measure against the development of the more serious suppurative type of ethmoiditis by facilitating drainage from the ethmoid cells.

There is little to suggest concerning the ultimate cause of simple œdematous or myxomatous ethmoiditis beyond a possible impairment of the vaso-motor nerve force supplied to this area, which, however, is more manifest in the next variety of the disease, which I will designate as vaso-motor ethmoiditis. The following types, suppurative ethmoiditis and necrosing ethmoiditis, can reasonably well be traced as outgrowths of the former varieties.

Regarding the microscopic structure of nasal polypi and of myxomatous tissue, there is nothing to add to the studies of Jonathan Wright,‡ recently reported to this association, in which he described distinctions between the so-called nasal myxoma and true myxoma, the inference being that the nasal growths are of inflammatory origin and to be ascribed to hypertrophic rhinitis. This limited causation is exemplified in my series, but only by a few cases, and the reason for the comparatively rare transformation of the common hypertrophic process into one of mucoid or œdematous character still remains a mystery.

I will attempt a clinical classification of the various

conditions which are found associated with and underlying the formation of nasal polypus:

TYPE I. NASAL POLYPUS WITH HYPERTROPHIC RHINITIS.

CASE I.—Miss T., aged ten years, has enormous hypertrophy of the left inferior turbinated body and numerous polyps which proceed from the middle meatus and are closely impacted between the neighboring turbinated bodies and the septum (Figs. 2 and 3). They are continuously imbedded in a mass of thick

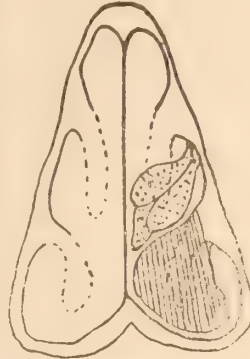


FIG. 2.



FIG. 3.

viscid muco-purulent secretion. In the other nostril hypertrophy is present, but it is insufficient to obstruct the drainage, and no polyps are visible. Operations first by the cold wire snare resulted in the removal of numerous growths, but they redeveloped as rapidly as removed, springing up like mushrooms in the sodden soil maintained by the imprisoned secretions. Then, after several weeks of such trials, the inferior turbinated body was cauterized along its entire extent, being reduced in front, where it especially interfered with drainage, almost to a rudiment. One was then enabled to trace the tumors to their exact seat of attachment in the immediate vicinity of the hiatus semilunaris, and to thoroughly eradicate them by reaching that position with a cautery point. No recurrence. Cure complete, as verified by several re-examinations during the past six years.

This patient presented no symptoms of ethmoiditis other than the suggestiveness of the polyps, and since permanent recovery followed promptly on reduction of the hypertrophic rhinitis, it is a fair inference that the latter affection alone, leading to defective drainage, was the antecedent condition to the development of nasal polypus. This case may be considered as fairly typical of a group of six selected from the entire series of forty cases. One of them possessed but a single polypus which grew from the middle meatus and has not recurred in the past five years (Fig. 4). Another was affected with a large single polypus which projected into the nasopharynx and has not recurred for one year. The others have passed from observation.

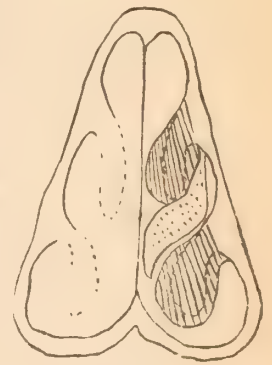


FIG. 4.

TYPE II. NASAL POLYPUS WITH SIMPLE MYXOMATOUS ETHMOIDITIS.

CASE II.—Mr. B., aged forty years, complains of pressure in the ethmoid region. He had several polyps removed five

* *Transactions of the American Laryngological Association*, 1891.

† *Journal of the American Medical Association*, December 2, 1892.

‡ *New York Medical Journal*, November 4, 1893.

years ago. Examination discloses great enlargement of the middle turbinated bodies, which press firmly against the septum on each side. They have a glistening aspect and a pultaceous

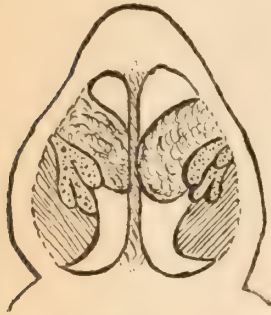


FIG. 5.

touch, indicative of œdematous or myxomatous degeneration rather than of ordinary hypertrophy (Fig. 5). A compact bunch of small polyps juts out from beneath each middle turbinated body, having in the course of time forced the latter quite a distance from the external wall of the nose, the space thus made being so much wider than usual that the polyps can readily be inclosed by a snare close to the hiatus semilunaris, through which

they seem to project as if emanating from points in the ethmoid bone still higher up.

The patient has a peculiar facial aspect; the base of the nose, externally, is broadened, this deformity being produced by actual thickening of the superior maxillary bone near the line of articulation with the nasal bone, and there is infraorbital swelling of a quasi-œdematous nature, which simulates the physiognomy of Bright's disease. Such facial swellings, bilateral or unilateral, I have observed in other cases, both of nasal polypus and of ethmoiditis without polypus, and have ascribed them to intranasal pressure from distention in the ethmoid region.

After removal of the polyps by the cold wire snare the borders of the hiatus semilunaris were scraped to the bone by insinuating a small sharp curette upward and outward beneath the middle turbinated body. The middle turbinates were then cauterized as if for hypertrophic rhinitis, which materially reduced their size. Resection of the middle turbinated bodies, not seeming absolutely necessary, was not done in this case, although it is possible that such would have been the better line of treatment, and that it will be required at a future time. The facial swellings have been greatly improved and the intranasal discomfort suspended by the treatment.

In this case, the myxomatous degeneration of the middle turbinated bodies (processes of the ethmoid bone) and the polyps themselves, which project at least from the immediate vicinity of the median ethmoid cells, together with the facial deformities, indicate considerable involvement of the ethmoid structure; but the designation œdematous or myxomatous ethmoiditis is more certainly justified by the next case, which presents the same pathologic conditions in kind, only more advanced in degree:

CASE III.—Mr. N. M., aged fifty years, first came under treatment in 1884, at which time I removed a few polyps and reduced by the cauter and snare the *inferior* turbinated bodies, which were then greatly hypertrophied. He has continued to suffer a variety of noteworthy reflex symptoms: for instance, a sense of pressure far back between the eyes becomes at times so severe as to induce a high degree of nervous excitement culminating in cardiac palpitation, which occasionally leads to actual syncope. The heart is devoid of organic lesions. Re-examination in 1894 discloses enormous osseous overgrowth with polypoid degeneration now of the *middle* turbinated bodies, which together with a few small polyps literally pack the upper channels of the nose. The cauter here was obviously inadequate to the requirements, so I performed resection of the middle turbinated bodies, piecemeal, by means of

the snare, serrated scissors, and bone forceps. This laid bare the ethmoid cells, from which polyps could be seen to protrude, and whose walls were in a similar state of polypoid degeneration. These parts were scraped by a sharp curette. On the left side, curiously, no true polyps had been visible until after removal of the middle turbinated body, when two, of good size but of flat shape, were exposed which projected from the region of the ethmoid cells (Fig. 6). The antrum of Highmore had been opened in 1893 by the patient's dentist, two small polyps being found therein but no pus.

This case would conform to the variety of ethmoid disease designated by Bosworth* "intracellular polyp without pus discharge," of which his series comprised but a single case. It only differs from my preceding case, however, in the degree of development of the "intracellular" polyps, and these two cases will serve to typify a group which comprises fourteen of the entire series of forty cases.

In most of the fourteen cases the middle turbinated bodies presented evidence of myxomatous degeneration, and two of them had each a large typical polypus developed from this process of the ethmoid, which was removed in each instance together with a part of the bone itself. Five in all of the fourteen cases of this group were subjected to resection of the antero-inferior part of the middle turbinated bone, which operation exposed the hiatus semilunaris and the nasal surface of some of the ethmoid cells, especially the bulla ethmoidalis, and in those so treated these parts of the ethmoid mucosa were found to be the seat of polypoid excrescences. In all of the cases of this group not thus exposed by operation, polyps were observed to project from beneath the middle turbinated bodies, which were traceable toward the hiatus semilunaris and ethmoid cells. It would seem but natural that many of the polyps should form attachments to the edges of the hiatus, as was demonstrated by Zuckerkandl, while they are gravitating through this groove or being forced through it by œdematous pressure in the cells above. The point is that, though distinct polyps are found to be attached to the borders of the hiatus, it is probable that in a large proportion of cases the initial lesion is a diffuse mucoid or œdematous ethmoiditis.

TYPE III. NASAL POLYPUS WITH VASO-MOTOR ETHMOIDITIS.

CASE IV.—Miss McC. was referred to me by Dr. E. J. Gardner in 1889. She had suffered from complete nasal obstruction for several years, together with asthma and hay fever. There were multiple polypi, which, after removal, would redevelop with astonishing rapidity, growing in profusion not only from the middle meatus, but also from the superior meatus posteriorly, and from both the middle and superior turbinated bodies. The entire nasal mucosa was in a state of œdematous tumefaction, as if devoid of vaso-motor control.

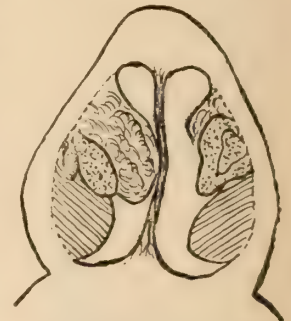


FIG. 6.—Representing on one side polyps growing from the ethmoid region, visible only after resection of the middle turbinated body.

* Transactions of the American Laryngological Association, 1891.

The nostrils at best would have been considered narrow, the middle turbinated bodies were crowded, and drainage was defective. Efforts at cauterization resulted in troublesome adhesions and accomplished but little good. I ultimately removed the antero-inferior part of each middle turbinated body with the greatest possible benefit to the patient. Drainage was thereby restored throughout the middle and superior nasal channels as well as from the ethmoid cells, and the parts began to assume a healthier aspect.

The hiatus semilunaris and the ethmoid cells just above, which were thus exposed, were found filled and covered with polyp buds and myxomatous tissue. These were scraped by sharp curettes and picked off by cutting forceps—a process which was found much more effective in this region than cauterization. The patient is still seen at monthly intervals, when I sometimes pick off a polypoid excrescence or a piece of suspicious tissue to insure against redevelopment. She suffers only an occasional “filling up” of the nose, respiration being at most times free. She has escaped hay fever during the past three seasons, and is practically but not absolutely free from asthma.

This case is remarkable as an extreme example of the type—vaso-motor ethmoiditis; for the length of time, five years, during which she has persistently submitted to treatment; for the quantity and novel character of the surgical treatment, and for the satisfactory result attained.

The case is typical of a group which comprises nine of the entire series of forty cases, the salient features of which were the same in kind in all of the nine cases, although differing somewhat in degree. Three other patients of the group were subjected to the operation of resection of the middle turbinated bodies on one or both sides, and the same myxomatous degeneration and tumefaction of the mucosa of the underlying ethmoid cells was disclosed.

Asthma was a universal symptom, which to some extent has influenced the grouping together of these particular cases, since I am convinced that asthma of this variety is caused by a similar vaso-motor tumefaction of the bronchioles. Four of the nine cases suffered from hay fever or, as it is termed also by Bosworth, vaso-motor rhinitis, which further indicated the possession of a fundamental neurotic habit. Distention of the erectile tissues of the nose was common to the group, but in addition they all presented a supersensitiveness in excess of that which attaches to ordinary hypertrophic rhinitis, various irritants, such as dust, coal-smoke fog, aroma from horses, etc., sufficing at any season to excite a form of tumefaction suggestive of vasodilatation. The ethmoid region in most of the cases seemed especially sensitive.

All points considered, the descriptive term, vaso-motor ethmoiditis, would seem justified as applied to this group of cases.

TYPE IV. NASAL POLYPUS WITH SUPPURATIVE ETHMOIDITIS.

CASE V.—Mr. McC., aged fifty years, has suffered from nasal polypi for ten years. One year ago intense pain commenced over the left frontal sinus, then supraorbital bulging and tumefaction, and finally, after months of intense suffering, spontaneous discharge of pus occurred from the frontal sinus, having forced its way through the bony wall of this cavity and opened between the eyeball and the supraorbital arch of the frontal bone.

He then applied to Dr. Christian Fenger, who referred him

to me with a view to avoidance of an external operation by reopening, if possible, the natural channel by intranasal treatment.

The left middle turbinated bone was enormously enlarged and in an advanced state of myxomatous degeneration, the whole mass, together with some small polyps, being packed in place so firmly as to obliterate the middle meatus and to press the septum toward the opposite side. I removed this diseased mass, bone and all, in fragments at different sittings by means of cutting forceps, which operation also served to expose polypoid excrescences with suppuration of the ethmoid cells, which were then scraped and drained. The other nostril required similar treatment, but to a less extent. The result is satisfactory concerning the nose, but the frontal fistulous discharge, although greatly diminished, is still perceptible, which indicates continued obstruction of the natural drainage channel, doubtless by polypoid tissue beyond intranasal reach. Attempts at catheterization of the frontal sinus *via* the nose and infundibulum were not entirely successful even after the removal of the degenerated tissue which had represented the middle turbinated body.

Polypus, in association with suppurative ethmoiditis, is represented in this series of forty by a group of six cases, of which the one detailed is essentially typical. It alone, however, was complicated by empyema of the frontal sinus. It and three others of the group, making four out of six, were complicated by empyema of the maxillary sinus.

In the case related the suppurative ethmoiditis and polyp formation were bilateral, although worse on the left side, on which the complications occurred. In the other three cases polyps existed in both nares, although suppuration of the ethmoid cells was unilateral in each and occurred on the same side as the empyema of the antrum.

In three of these cases the maxillary sinus was opened and drained, then resection of the middle turbinated bone was made, and in one case the posterior ethmoid cell was well opened by revolving burrs, which was done by following the lead of a probe which could be passed into this suppurating cavity. One case declined operation other than removal of the polyps; and the diagnosis of suppurative ethmoiditis was made by observing the escape of pus through the superior meatus into the nasopharynx, which indicated involvement of the posterior ethmoid cells.

The two remaining cases of this class were subjected to resection of the middle turbinated bodies, by which better drainage was secured, this making five of the group of six cases which were thus treated, in addition to other measures, all being thereby immensely benefited.

Curiously enough, none of these cases suffered from asthma. In two, denuded bone could be felt by a probe before operating, and in one case the odor was indicative of necrosis.

I believe that purulent ethmoiditis with polypus is to be regarded as a sequel to the simple myxomatous type; that suppuration of the ethmoid cells occurs only after myxomatous tissue has accumulated sufficiently to obliterate their natural drainage channels. This view is substantiated by Case V, in which suppuration of the frontal sinus occurred in conjunction with obliteration of its outlet. As mentioned by Bosworth,* “the natural result of

* Various Forms of Disease of the Ethmoid Cells. *Trans. of the Am. Laryn. Assoc.*, 1891.

a damming back of a mucous secretion is the development of a purulent inflammation." The sequence of events would then be, first, simple myxomatous ethmoiditis, which may assume as a variation the type of vaso-motor ethmoiditis with asthma, then nasal polypus, and finally supuration of the ethmoid cells and of the collateral sinuses by obstruction to their outlets either by distinct polyps or myxo-degenerated tissue.

Herein lies the prophylactic value of the operation of resection of the middle turbinated body in cases belonging to type ii, polypus with simple myxomatous ethmoiditis, and to type iii, polypus with vaso-motor ethmoiditis, for in addition to exerting a curative influence over these earlier forms of the disease, it will tend to prevent the culmination of the suppurative type of ethmoiditis, by maintaining drainage from the ethmoid cells and by facilitating access to the hiatus semilunaris for the radical removal of polypoid tissue. In like manner it should tend to prevent the troublesome complications of empyema of the maxillary and frontal sinuses, and the not impossible fatal contingency of infection of the cerebral meninges.

I would not imply that the operation should be made in every case; but it should be done in most cases in which the middle turbinated body has undergone myxomatous degeneration with downward and lateral enlargements, so that it packs the space in which it lies, and in certain other cases in which by reason of abnormal conformation it exerts undue pressure on the sæptum, or when it is necessary to gain space for drainage or instrumental manipulation.

Conversely, if the middle turbinated body be of normal contour, and present no impediment to drainage, to the transmission of light or instruments, there will then be no occasion to interfere with it, and, it may be further said, under such conditions it would be most difficult to perform its resection.

TYPE V. NASAL POLYPUS WITH NECROSING ETHMOIDITIS.

Grouped together under the name of necrosing ethmoiditis, Dr. Edmond Woakes* gave the first succinct account of some of the conditions which have been described and classified in this paper. His contention that nasal polypus indicated a chronic inflammation of the tissues of the ethmoid is in large measure substantiated by the foregoing analysis of cases; but that necrosis or even caries of bone is a "usual" accompaniment is not confirmed, so that it would seem wise to limit the term necrosing ethmoiditis to the class of cases in which necrosis, or at least caries, actually exists and can be unmistakably demonstrated.

Exactly what determines necrosis is not yet clear, but it is evident that certain cases of "polypus with simple myxomatous ethmoiditis" and of "polypus with vaso-motor ethmoiditis" may exist for years without necrosis, other cases finally succumbing to this complication, while still others present the element of necrosis almost from the incipency and as the main feature of the disease.

Of the entire series of forty cases only five were accom-

panied by unmistakable necrosis of bone, of which one has already been classed under type ii and two under type iii, the necrosis being an incidental rather than a predominating feature of these cases. The remaining two cases were characteristic of the disease as portrayed by Woakes. The details of one will suffice:

CASE VI.—Miss P., aged twenty years; catarrhal symptoms for years. Examination discloses atrophic naso-pharyngitis, with horribly foetid incrustation. The right middle turbinated body is much enlarged and has undergone cleavage, presenting the appearance of two bodies side by side. From the cleft protrude several small polyps or polyp buds, and others exist in the immediate vicinity. A fine probe inserted into the fissure detects denuded bone (Fig. 7).

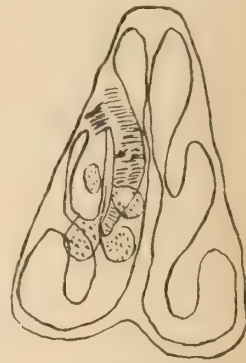


FIG. 7.

Resection of the middle turbinated body should have been made in this case, but its treatment antedated my experience with the operation. Thorough canterization and other appropriate measures sufficed to ameliorate the symptoms, and the patient passed from observation.

Annotations on Treatment.—The general surgical treatment of nasal polypus and its complications has been outlined in the body of the paper, and it only remains to describe briefly the technique of resection of the middle turbinated body, and to describe the instruments which I have devised and adapted for this use.

Only rarely can the operation be wholly accomplished by the snare alone; but a snare is useful either to remove a piece of the bone which happens to project sufficiently to be enveloped by the wire, or to finish a resection that has been partly made by serrated scissors. The snare must be capable of manipulation by one hand, and should combine lightness and balance with strength of construction. These requirements are fulfilled by the mechanism of Slover Allan.

The curved, serrated scissors (Fig. 8) which I have devised for the purpose can be insinuated, one blade on each side of the anterior end of the bone, and a cut made for a variable distance backward, when the operation, if not complete, can be finished by the snare or forceps.

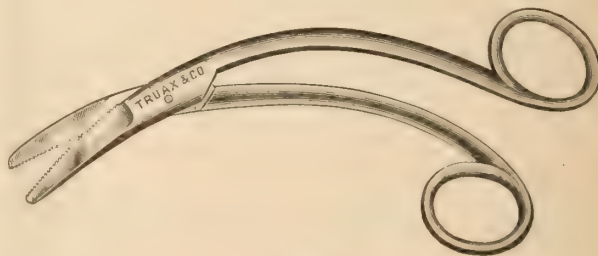


FIG. 8.

I have also devised a bone-cutting forceps for this purpose, but, in addition, I have found two other forceps of service, especially for the removal of the bone in fragments; one of these was devised by Prince to aid in removal of

* Nasal Polypus, etc., in Relation to Ethmoiditis, 1887.

the inferior turbinated bone, and the other, the sharpest of all, was evidently devised for sæptum work. Unless it be an easy case, it will be unnecessarily painful to the patient to remove the desired quantity of the bone at a single operation. I more often accomplish it fragment by fragment, always desisting for the time as soon as hæmorrhage obscures the view, and this method is absolutely necessary in case the middle turbinated body is greatly enlarged and closely impacted within its space. The exact amount removed has varied in different cases, from a small fragment of the antero-inferior part to a maximum of about one half of the entire bone.

As enumerated, group by group, I have made the resection in thirteen of the forty cases, and in retrospect it seems to me that there were still others in whom the operation was both indicated and feasible, probably enough to raise the proportion to about one half of the entire series.

34 WASHINGTON STREET.

AN ANATOMICALLY AND PHYSIOLOGICALLY TYPICAL CASE OF MUSCULO-CUTANEOUS NEURITIS.

By A. T. MITCHELL, M. D.

THIS case was so perfectly correct in all its aspects that I deemed it instructive enough for publication.

The patient was struck on the antero-external aspect of the forearm, immediately below the elbow joint, the blow not breaking the skin, but causing a decided contusion just below where the anterior of the two terminal cutaneous branches of the musculo-cutaneous becomes superficial. A severe neuritis manifested itself at once by pain and tenderness, with paræsthesia and hyperæsthesia along the front and outer aspect of the forearm, showing the rapid extension of the neural inflammation downward. Paresis was present from the beginning. The only trophic disturbance was an eruption, herpetic in character, accompanied by itching. Treatment was unavailing, and the nerve trunk became involved certainly as high as the motor point of the coraco-brachialis, evidenced by paralysis of that muscle, the biceps humeri, and brachialis anticus. At present, four months since the accident occurred, all three of these muscles are entirely atrophied, and anæsthesia is complete along the distribution of the external cutaneous nerves. The supinator longus and extensor carpi radialis longior are greatly hypertrophied, they being the only muscles capable of compensation. Electrical stimulation of the musculo-spiral nerve failed to get a response from the brachialis anticus, that muscle in this instance either not having a double nerve supply or else the musculo-cutaneous having had exclusive control of its trophic influences. The reaction of degeneration (Erb's formula) was not sought for because it was superfluous. That the nerve was affected above the point of injury is, of course, due to the inflammatory process extending by continuity of tissue, the direction of impulse having no bearing at all. The only hope for amelioration, of course, lies in increasing the compensatory hypertrophy of those of the radial group of muscles attached to the humerus.

A Colored Sneak Thief.—A colored sneak thief has, we are informed, lately been operating in the neighborhood of the Presbyterian Hospital, his favorite booty being the doctor's overcoat, which may have been incautiously left hanging on a hat rack in the hall. Physicians are warned against this individual as well as against others of his class.

A STUDY OF ERYSIPELAS:

ITS INFECTIOUS NATURE; THE DEPRESSION UPON THE VITAL POWERS;
SEPTICEMIA AS A COMPLICATION;
THE CURATIVE INFLUENCE UPON GRANULATING SURFACES
AND UPON SARCOMATOUS GROWTHS.
WITH A REPORT OF ELEVEN CASES.*

By JULIUS SELVA, M. D.,

SURGICAL INTERNE TO THE BOSTON CITY HOSPITAL;
LATE INTERNE TO THE BOSTON CHILDREN'S HOSPITAL.

WHILE a surgical interne to the Boston City Hospital I have had the opportunity of observing many cases of erysipelas of unusual type, and from their character I have formed the opinion that the disease is more dangerous than it is usually supposed to be.

In looking up the literature on the subject I have been led to the belief that many writers consider this affection more from a local than from a general point of view; there is more attention paid to the local process than to the systemic disturbances, which are by far of capital importance, inasmuch as they may in many instances seriously endanger life or even cause death.

Some authors define erysipelas as "an acute and specific inflammation of the skin and subcutaneous tissue, characterized by diffuse, shining redness, pain, swelling, and elevated temperature of the affected part, terminating in desquamation and usually accompanied by fever."

Other writers go somewhat further and state at once that "erysipelas is, on the one hand, a *general intoxication*, and, on the other hand, an acute, progressing inflammation, with predominant serous infiltration of the tissues, associated with febrile movements, and produced as the result of local *infectious action*."

In the light of modern bacteriology it is a well-recognized fact that erysipelas is an acute infectious disease, caused by the *Streptococcus erysipelatos*, the micro-organism always obtaining an entrance into the system through a wound or a small abrasion of the skin.

That there are mild forms of the affection with localized symptoms is unquestionable; that these forms are quite common is also true; but it is not less true that there is sufficient clinical and pathological evidence to show that the general infection often overshadows the local condition and plays a more important rôle in the course of the illness. Indeed, there are cases where erysipelas presents the picture of a general infectious disease with a local manifestation.

The symptoms which the disease produces vary in their nature and intensity, and in reporting the following cases I will classify them in two different groups.

1. *In the first group* I shall consider those cases of erysipelas where the local inflammation is subordinated to the general infection, as manifested by the presence of suppurative processes, by the marked prostration and lowering of the vital powers, by the typhoidal condition, and by the occurrence of septicæmia.

2. *In the second group* I shall dwell upon cases of erysipelas which bear relation to the curative effect upon granulating areas and upon sarcomatous growths.

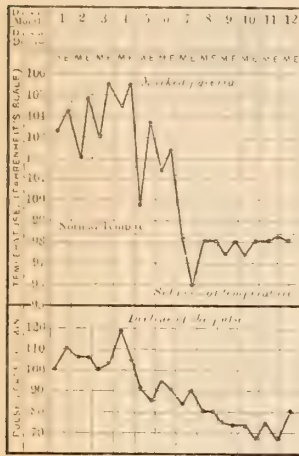
* A thesis presented for graduation at the Medical School of Harvard University, June, 1894.

GROUP I.

CASE I. Erysipelas of the Face; Marked Pyrexia; Depression of the Vital Powers; Recovery.—M. F., aged forty-two years, laborer, entered the City Hospital on March 1, 1894.

History.—On the afternoon of February 23d he was thrown from a sleigh, landing on his nose.

Physical Examination.—Well developed and fairly well nourished. Heart and lungs not abnormal. Liver and spleen:



Group I, Case I.

No enlargement made out. Face: On the left side of the nose there is a superficial wound half an inch in length and nearly healed. The skin covering the anterior and lateral surfaces of the face, the ears, and both sides of the neck is swollen, red, and painful, with a smooth, glazed appearance. The edges of the swelling are well marked. No evidence of fracture present. The urine is negative, excepting the presence of the diazo reaction. The pulse is 100, of fair strength and volume. The temperature is 103°. The respiration, 26.

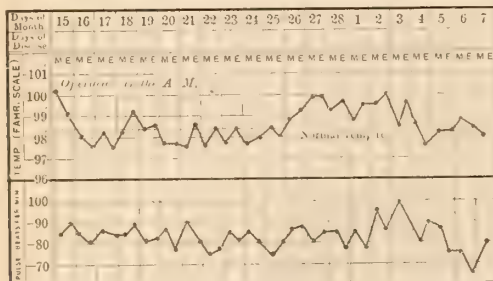
Subsequent History.—The case was treated by the judicious use of stimulants, careful diet, ice cap to the head, and lead wash to the inflamed skin.

On March 9th the swelling of the face had disappeared; desquamation was present, and resolution was thus being established.

The special feature of this case was the increased pyrexia for a period of six days (*vide* chart), corresponding to the height of the inflammation. The constitutional disturbances were well marked; headache and dizziness present. With the drop of the fever there was a similar decline of the pulse.

It will be noticed that toward the close of the disease the temperature became subnormal, as the result of the great prostration which the disease had produced. This depression of the vital powers is a feature of the affection which should always be borne in mind.

CASE II. Erysipelas of the Right Leg; Necrosis of the Skin and Subcutaneous Tissue; Suppuration; Operation; Recovery.—P. K., aged thirty-eight years, laborer, entered the City Hospital on February 14th.



Group I, Case II.

History.—Swelling and pain of the right leg. No apparent cause. These symptoms have steadily grown in severity, and patient has been confined to bed.

Physical Examination.—Heart action regular; no murmur. Liver and spleen not enlarged. Right leg: On the outer aspect of the thigh and extending downward to a little below the knee the skin is tense, red, and covered with vesicles of varying sizes. At places the skin is desquamating. There is fluctuation and boggy of the soft parts.

Urine, acid; no albumin or sugar. Diazo reaction present.

Subsequent History.—On February 15th Dr. Watson made an incision seven inches long over the seat of the swelling in the right thigh. A large abscess cavity was opened between the skin and the fascia lata, involving the outer and posterior portions of the thigh. A pint or more of foul, acrid, thin pus was evacuated. Sloughs of the connective tissues were removed in masses by the curette. The skin appeared necrosed in places, and it was excised. Smaller counter-incisions were made for drainage.

Direct examination of the purulent fluid showed streptococci. Blood-serum cultures, at the end of twenty-four hours, showed pure cultures of the same micro-organisms.

There was a diminution of the temperature after the operation. The case made a steady recovery. A clean granulating area, fifteen inches in length and four inches wide, appeared in the course of two weeks. This ulcer healed slowly, and on May 8th, at the time of the patient's discharge from the hospital, it was almost entirely healed. Good general condition.

The treatment consisted of stimulants, nourishing food, and daily application of antiseptic dressing to the right thigh.

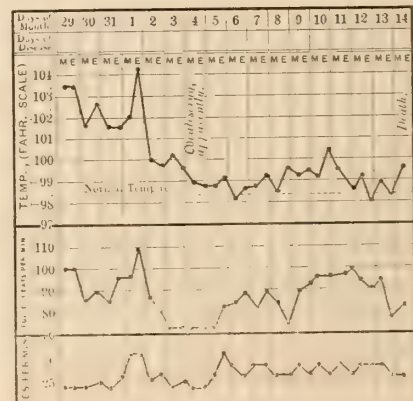
In the above-related case the virus did not confine itself to the superficial capillary lymphatics, but it spread to the subcutaneous connective tissue, thus bringing about suppuration, which process is extremely rare in ordinary erysipelas. So I will classify this case as one of the variety known as "phlegmonous erysipelas."

CASE III. Erysipelas of the Face and Scalp; Morphine Habit; Exhaustion; Death.—R. K., a married woman, aged forty-eight years, entered the hospital on January 29th.

Family history negative.

Past history: Patient has been addicted to the morphine habit in a marked degree for a number of years. Several ounces of the drug are said to be consumed in the period of four to five weeks.

Present illness: For a week has had swelling and redness of the nose, which swelling has now spread all over the face.



Group I, Case III.

Physical Examination.—Body fairly well developed and greatly emaciated. Face: The alæ nasi and both sides of the face as far as the ears present a circumscribed swelling, of a reddish color, fading on pressure and with shining, smooth appearance. Two small vesicles, a quarter of an inch in diameter,

are seen on the left cheek. The scalp: That portion covering the forehead appears similarly affected.

There was no apparent cutaneous wound. The temperature, 103°; pulse, 100, regular. Heart: No abnormal sound; action weak. Lungs: Occasional râles; no dullness. Liver and spleen not palpable. Urine: Diazo reaction present; otherwise negative.

Subsequent History.—On January 30th the redness increased backward behind the ears. Alcoholic stimulants and nervous sedatives were given and lead-wash compresses applied on the face.

On February 4th the local process appeared to have subsided, desquamation ensued, and convalescence was apparently being established. This, however, was not the case. The patient's general condition became severely impaired; diarrhœa came on; she complained of pain in the posterior part of the legs; her heart became weak and irregular; and, in spite of nervous sedatives and active stimulation, death occurred on February 14th. There was no autopsy.

The clinical history of this case is interesting, because the disease, though apparently mild in its course and duration, was severe enough to bring on death in a subject who had been under the influence of morphine for a number of years—a subject who had become debilitated and of insufficient strength to counteract the prostration and toxic influence of the erysipelatous infection.

CASE IV. Erysipelas of the Face; Fatty Degeneration of Muscles of the Right Thigh; Death from Septicæmia; Autopsy.—M. G., a woman, fifty-two years of age, seamstress, entered the medical wards on February 7, 1894.

Family history and past history negative.

Present illness: Ten days previously had a fall, following which there was swelling, tenderness, and redness of the skin covering the forehead and eyelids. Patient is unable to walk on account of pain in the right thigh. Further history is not obtainable.

Physical Examination.—Body extremely fatty. Pulse regular, of fair strength and volume. Heart: Area of dullness not determined on account of the development of the breast. Auscultation of heart and lungs imperfect on account of the continual groaning of the patient. Liver and spleen not palpable. Abdomen prominent, tympanitic, not tender. Extremities: Marked swelling about the outside of the right hip joint, with a large discolored area of the size of the palm of the hand, the swelling and ecchymosis extending over the right buttock. There is pain at the right hip, greatly aggravated by motion or pressure. Inability to stand on her feet.

Face: The skin over the forehead, extending down into the bridge of the nose and to some extent into the cheeks, is reddened, œdematous, and tender to pressure, presenting a well-defined margin. Both eyelids are œdematous, obliterating all facial expression. Pus exudes from sinuses in both eyes. In the right inner canthus a probe passes into a cavity extending from half an inch to an inch in all directions. Urine: Traces of albumin, occasional granular casts.

Subsequent History.—The case was treated with alcoholic stimulants, careful diet, and the application of lead wash to the inflamed skin.

On February 8th patient became heavy and stupid. The pulse was feeble, rapid, and irregular. The swelling of the eyelids and forehead was more marked. The right leg was half an inch shorter than the left; there was pain at the right hip, increased on motion, and this fact led to the assumption that there might be a fracture. On this account the patient was transferred to the surgical wards. Crepitus and abnormal mo-

bility were not detected, and final diagnosis as to the nature of the injury was not made.

On February 9th, at 3.30 A. M., patient entered into a deep collapse, with cold, clammy skin; cyanosis; intermittent, feeble pulse; and finally died at 6.20 A. M.

Autopsy on February 10th by Dr. Councilman.

Body large and extremely fatty.

The skin of the face is œdematous and congested. Eyes nearly closed from œdema. Over the right eye there is a superficial contused wound about three centimetres long. Over the right buttock there is a large contusion, circular in outline, and about ten centimetres in diameter. Over the contusions and the surrounding skin there are large blebs filled with clear, blood-stained fluid.

Lungs and pleura: The pleuræ smooth. There is a slight amount of fluid in the pleural cavity. There is also congestion and œdema in the posterior portions of the lungs.

Pericardium normal.

Heart very soft, pale, and flabby.

Peritonæum smooth. Several of the appendices epiploicæ hæmorrhagic.

Spleen somewhat enlarged, rather soft. Neither Malpighian bodies nor trabeculæ visible.

Kidneys of ordinary size. Cortex pale and cloudy.

Stomach and intestines normal.

Adrenal glands and pancreas normal.

Aorta: In the arch there are a number of calcified plates in the interior, the largest perhaps a centimetre in diameter.

Uterus somewhat enlarged and filled with mucoid material.

Muscles: The muscles of the right thigh in the neighborhood of the hip are pale and soft, almost diffuent.

There is no fracture.

Anatomical diagnosis: (1) Erysipelas of the face, (2) *Streptococcus septicæmia*. Fresh examination of the muscles about the right hip joint showed extreme fatty degeneration of the muscular fibers and enormous numbers of streptococci. Few pus cells were present.

Cultures on blood serum of the liver, spleen, kidneys, muscles of the right thigh, and blood showed a great number of streptococci.

CASE V. Erysipelas of the Right Leg; Death from Septicæmia; Autopsy.—O. C., a laboring man of about thirty-five years of age, entered the hospital on February 17th in an unconscious condition. The history was not obtained.

Physical Examination.—Body strongly built and well nourished. Heart: Strong impulse. No murmur or enlargement. Liver and spleen enlarged and palpable. Urine negative. Right lower extremity, from the foot to the upper part of the thigh, is much swollen, red, and hot. The swelling and redness present a sharply defined border at the upper part. On the posterior, the outer, and the inner aspects of the lower leg the skin is raised and necrosed, and purulent discharge appears from the ulcerating surface. The temperature, 104°. The pulse, 106, regular, full, and strong. The respiration, 25, shallow and rapid.

Subsequent History.—Stimulants were given and corrosive dressing (1 to 6,000) was applied to the right leg.

On the following day, February 18th, at 12.05 in the morning, patient suddenly collapsed and died, the pulse apparently of good tension until the last.

Autopsy by Dr. Councilman on February 19th.

Body large, tattooed on the anterior surface of both forearms.

Right lower extremity: On the posterior surface of the right leg there is a small ulcerating area. The entire lower leg, extending upward over the thigh, is deeply congested, injected, and œdematous.

The inguinal glands on the same side are swollen, reddened, and in places in the tissues adjacent to them there appear to be small purulent foci. Subcutaneous fat abundant. Muscles dark red. Lungs: Both lungs are adherent at their apices. Their posterior portions are intensely congested. In both lungs the anterior portions are emphysematous. Heart of medium size. Valves, normal. Liver, very large and pale. Spleen weighs six hundred grammes; $11 \times 9 \times 5$ centimetres. On section, rather soft, darkened. The capsule tense.

Kidneys: Both kidneys enlarged. No appearance of nephritis. Adrenal glands and pancreas normal. Peritonæum smooth. Intestines: Large intestine and sigmoid flexure distended. Testicles normal. Anatomical diagnosis: (1) Erysipelas of the lower leg with infection of the lymphatics and acute septicæmia. (2) Acute swelling of the spleen. Cultures from blood and organs contain numerous colonies of the *Streptococcus pyogenes*.

CASE VI. *Erysipelas of the Face and Scalp; Death from Septicæmia; Autopsy*.—A. B., laborer, forty-nine years of age, entered the City Hospital on January 12th. The patient was in a delirious condition and the history was not obtained.

Physical Examination.—Well developed and well nourished. Tongue, dry, brown-coated. Pulse regular and of good strength and volume. Heart negative. Lungs. Front aspects, negative; backs, not examined. Abdomen distended and tympanitic. Liver negative. Spleen obscured by tympany. Extremities negative. Face: The skin of the whole face is greatly swollen, red, and excoriated. There are blebs, and serous fluid oozes here and there. Eyes: Thick purulent discharge from conjunctiva. Urine not obtained.

January 13th.—Patient gradually became more and more delirious; the pulse became feebler and feebler, irregular and dicrotic; no response to stimulation, and death occurred at 4 A. M.

Autopsy by Dr. Councilman, January 15th: Body large, with marked posterior curvature of thorax. Marked rigor mortis. Subcutaneous fat abundant. Muscles red, somewhat infiltrated with fat. Thorax narrowed; very deep antero-posteriorly. Scalp thick, filled with yellowish serum and pus; rigid, almost incapable of being bent. Skull thick and firm. Dura mater somewhat thickened. Meninges oedematous. Convulsions of brain well developed; brain normal. Diaphragm extremely high. Heart lay almost at cleft of sternum; valves normal. Lungs, both adherent, congested posteriorly. Liver large and extremely fat. Spleen large, rather soft. Pancreas infiltrated with fat. Adrenal glands normal. Intestines: Mucous membrane rather pale. Testicles: Left is small, almost entirely atrophied; right normal. Face swollen and oedematous. Both conjunctivæ filled with pus.

Anatomical diagnosis: (1) Erysipelas of the scalp and face. (2) Septicæmia.

Results of the Bacteriological Examination by Dr. J. H. Wright.—Tissue of the scalp: Colonies of the *Streptococcus pyogenes*, a few colonies of the *Staphylococcus albus*, and a segmented bacillus resembling the *Bacillus diphtheriæ*. Lateral sinus: Numerous colonies of the *Staphylococcus albus* (?) and a moderate number of the segmented bacilli found in the scalp. Meninges: Sterile. Left lung: Colonies of the *Staphylococcus aureus* and a few colonies of the *Bacillus coli communis* (?). Kidney: Colonies of the *Bacillus coli communis*. Liver and spleen: Sterile. Heart blood: Colonies of an unknown bacillus and a few colonies of various other bacteria. The segmented bacillus resembling the *Bacillus diphtheriæ* was found to differ from the *Bacillus diphtheriæ* in its biology and in that it had no pathogenic effect on two guinea-pigs which were inoculated subcutaneously.

(To be continued.)

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INDIAN EXPERIENCE IN THE INCINERATION OF REFUSE.

As the practicability and expediency of disposing of cities' refuse matter by combustion is now a subject of earnest consideration in various municipalities, it is useful to learn what results have been arrived at in cities where the process has been tried. The experience of Calcutta is related in an editorial article in the October number of the *Indian Medical Gazette*. The writer, after stating that in theory the reduction of the garbage of an Indian city to a harmless ash by burning is the easiest way of disposing of it and the one that best meets sanitary requirements, goes on to remark that, in the beginning at least, practical difficulties arose which showed that the method was far from easy. It is six years, he says, since the question of its employment was raised by the health officer of Calcutta. At the outset the suggestion was met with the objection that in European and American cities, where the system had been successful, the refuse contained a large amount of unconsumed fuel in the shape of coal, coke, and charcoal, with only a small proportion of vegetable matter, so that the whole was easily burned, whereas in an Indian city it consisted chiefly of raw vegetables with a small percentage of ashes, wherefore its combustion would prove impracticable. This objection, which gave rise to considerable controversy, was finally set at rest by a practical trial, and it was shown that the refuse of Calcutta was combustible. But more than two years had now elapsed, and many persons looked upon the experimental work as a waste of time and money; however, as it had been demonstrated that the refuse could be burned without coal, whether in the cold season or during the rains, it was admitted that a substantial step had been taken. Many problems connected with the details of the necessary system of procedure had, it was true, been left untouched, but they were recognized as minor ones and not beyond the resources of engineering.

It was found that the furnaces used in English towns were unsuitable for the very bulky refuse of Calcutta and Bombay, for they soon became choked and did their work in a very slow and unsatisfactory way, so that frequently the odor proceeding from the chimney was so offensive a nuisance as to show that such furnaces would not do in crowded localities. In the effort to overcome this objection the engineers have since been so successful as to have constructed furnaces and accessory contrivances quite capable of burning Indian refuse without the least nuisance. These improvements have consisted in the production of a more intense heat in the furnaces themselves and in the passing of the smoke and gases from them over a fire or exposing them in some other way to a high temperature. The

intense heat lessens the amount of smoke and burns a larger amount of refuse, while the exposure of the gases to a heat that breaks them up into their constituent elements renders the fumes issuing from the chimney perfectly harmless. If the heat is raised to 1,500° or 2,000° F., the writer thinks, it is doubtful if the additional precaution of washing the gases and smoke is necessary.

MINOR PARAGRAPHS.

BACILLI IN STREET CARS.

EXPERIMENTS recently made by Dr. Ezra Wilson, bacteriologist of the Brooklyn Health Department, demonstrate the presence of bacilli in the dust and sweepings of the street cars in that city. He has reported a fatal case of tuberculosis in a guinea-pig which had been inoculated with bacilli cultivated from dried sputum found in the cars. Health Commissioner Emory has decided, as a means of disinfecting the stations and cars of that city, that they shall be thoroughly cleansed every three days with a solution of bichloride of mercury. A sub-committee on the prevention of tuberculosis, of the Medical Society of the County of Kings, recently recommended that a city ordinance be passed making it a misdemeanor to expectorate in any public conveyance, but the suggestion was not carried out.

DISINFECTION OF TUBERCULAR SPUTUM BY PARACHLOROPHENOL.

ACCORDING to *The Medical Week*, Dr. A. Spengler has found that parachlorophenol infallibly kills Koch's bacillus. He injected into the peritoneal cavity of guinea-pigs one cubic centimetre of an emulsion of tubercular sputum, prepared either with ordinary water or with a two-per-cent. parachlorophenol solution. On killing the animals some time thereafter those that had been inoculated with disinfected sputum were entirely free from bacillary infection, whereas those into which the emulsion unmixed with parachlorophenol had been injected presented, without exception, tubercular lesions.

THE TREATMENT OF CERTAIN NECROSES BY OXYGEN INHALATIONS.

DR. V. ROMARO, according to *La Semaine médicale*, has found oxygen inhalation very beneficial as an adjuvant in the treatment of so-called functional neurosis of a convulsive type. These inhalations diminish the intensity and duration, and sometimes abort the paroxysm, of a convulsive attack. Employed systematically they gradually reduce the number of attacks, improve the general health, and may effect complete recovery. The therapeutical effects of these inhalations are said to be due to the fact that the oxygen counteracts the asphyxial state of the tissues and destroys the ptomaines, the accumulation of which in the organism is often responsible for the appearance of convulsive paroxysms.

INTESTINAL ANTISEPSIS.

DR. H. HUCHARD, of Paris, in a recent lecture recommended the administration of the following powders to secure intestinal antiseptis: R Benzophenanthol, 3 vjss.; powdered charcoal, 3 ss.; pancreatin, grs. lxxx. Mix and divide into fifty powders. Sig.: Take from four to six powders a day.

CRIMINAL INEBRIETY IN SWITZERLAND.

The Medical Week states that in 1893 more than one half of all minor offenses in the Canton of Vaud were committed by inebriates, resulting in a cost to the canton of 120,000 francs for judicial expenses.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending November 20, 1894:

DISEASES.	Week ending Nov. 13.		Week ending Nov. 20.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	24	4	19	6
Scarlet fever.....	59	6	93	3
Cerebro-spinal meningitis....	3	2	0	0
Measles.....	41	1	46	2
Diphtheria.....	163	31	168	30
Small-pox.....	26	0	6	6
Tuberculosis.....	126	104	86	96

The New York Society for the Relief of the Widows and Orphans of Medical Men.—The annual meeting of this society was held at the Academy of Medicine on the evening of the 21st inst. The society now has a hundred and forty-five members, of whom a hundred and four are life and forty-one annual members. Its total assets exceed \$195,000. Dr. Ellsworth Eliot was re-elected president; Dr. J. H. Emerson, Dr. David Webster, and Dr. Charles A. Leale were elected vice-presidents; and Dr. G. M. Smith, Dr. W. F. Cushman, Dr. J. S. Warren, Dr. J. Cabot, Dr. C. N. Knight, Dr. A. Jacobi, and Dr. S. T. Armstrong, managers for three years.

Changes of Address.—Dr. Stephen Smith Burt, to No. 21 West Thirty-second Street; Dr. A. M. Fernandez de Ybarra, to No. 1486 Lexington Avenue.

The Death of Dr. Alexander F. Carroll, of Brooklyn, took place on Saturday, the 17th inst. The deceased was graduated from the Long Island College Hospital in 1888, and for a short time was connected with the health department as a sanitary inspector. He was a member of the Medical Society of the County of Kings.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from November 11 to November 17, 1894:*

TEN EYCK, BENJAMIN L., Captain and Assistant Surgeon, is granted leave of absence for one month.

WINTER, FRANCIS H., First Lieutenant and Assistant Surgeon. By direction of the Secretary of War the leave of absence granted him in S. O. 71, July 25, 1894, Department of Texas, is extended one month.

SWIFT, EUGENE L., Captain and Assistant Surgeon. By direction of the Secretary of War the leave of absence granted him in S. O. 147, October 11, 1894, Department of Dakota, is extended one month.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending November 17, 1894:*

FLINT, J. M., Medical Inspector. Detached from the U. S. Steamer Baltimore. Ordered home, and granted three months' leave of absence.

GRAVATT, C. U., Surgeon. Ordered to the U. S. Steamer Charleston by steamer, December 4, 1894.

HAWKE, J. A., Surgeon. Detached from the U. S. Steamer Charleston and ordered to the U. S. Steamer Baltimore.

HOPE, J. S., Assistant Surgeon. Ordered to the U. S. Receiving-ship Franklin.

BARNUM, W. H., Assistant Surgeon. Detached from the U. S. Receiving-ship Franklin and ordered to the New York Navy Yard.

GATES, M. F., Passed Assistant Surgeon. Ordered to the U. S. Steamer Richmond.

BRUSH, G. R., Medical Inspector. Ordered before the Retiring Board at New York, November 17, 1894.

HENEGER, L. G., Surgeon. Detached from the Marine Rendezvous and ordered to continue special duty in New York.

STEELE, J. M., Surgeon. Detached from the League Island Navy Yard and ordered to the Marine Rendezvous, New York.

RUSH, W. H., Passed Assistant Surgeon. Detached from the Naval Academy and ordered to the League Island Navy Yard.

McCORMICK, A. M. D., Passed Assistant Surgeon. Ordered to the Naval Academy, Annapolis, Md.

Society Meetings for the Coming Week:

MONDAY, November 26th: Medical Society of the County of New York; Boston Society for Medical Improvement; Lawrence, Mass., Medical Club (private); Cambridge, Mass., Society for Medical Improvement; Baltimore Medical Association.

TUESDAY, November 27th: New York Dermatological Society; Buffalo Obstetrical Society.

WEDNESDAY, November 28th: New York Academy of Medicine (Section in Laryngology and Rhinology); New York Pathological Society; New York Surgical Society; American Microscopical Society of the City of New York; Metropolitan Medical Society (private); Medical Society of the County of Albany, N. Y.; Philadelphia County Medical Society.

SATURDAY, December 1st: Clinical Society of the New York Post-graduate Medical School and Hospital; Manhattan Medical and Surgical Society, New York (private); Miller's River, Mass., Medical Society.

Letters to the Editor.

BERI-BERI IN DUBLIN.

45 MACDOUGAL STREET, November 5, 1894.

To the Editor of the New York Medical Journal:

SIR: In an account of an outbreak of beri-beri in the Richmond Lunatic Asylum, Dublin, I read in your issue of November 3d that "beri-beri is a well-known disease which prevails in India, in Japan, on the Malabar coast, etc., and is generally considered to be due to overcrowding and want of cleanliness." Now let me tell you that the Japanese are the cleanest people in the world. Even the poorest of them bathe at least once, mostly twice, a day, and their houses are of a cleanliness that is really painful for an American or a European. The other supposed cause which you mention is the real one in this case, though not the only one in a general way; it is overcrowding—that is, the shutting up of carbonic gases in spaces filled with human beings. That is the theory or the ætiology of beri-beri which I proposed long ago. If, as you think, overcrowding is a cause of beri-beri, then it is through carbonic gases, the exhalations of the lungs. I have always found that when beri-beri broke out, either on a ship or in such a place as the Rich-

mond Asylum, the conditions were such that an excess of carbonic gases was produced, just as in overcrowding; for instance, it might be the fermentation of a cargo of sugar. I have shown that with all possible detail and exactitude in a number of articles published in various medical journals.

The first observations of this kind which I made were in Japan, where I was for two years director of the Tokio Hospital. There in the sunny season the outside wooden inclosures of the houses are taken down, door by door, and folded away. Only a paper wall remains, and even this is mostly open the whole day. But in the wet season these outside wooden doors and walls are always kept closed, and thus shut in the carbonic gases of the stoves. Japanese houses have no chimneys; the stoves are merely copper-lined boxes set in the middle of the room, so that the emanations of the stoves, charcoal gases, if precautions are not taken, and they never are in wet weather, to ventilate the rooms frequently, will amount sometimes to a considerable accumulation of poisonous gases. Now the beri-beri season is the wet season, when the houses are shut, and there is no beri-beri in the dry season when the inclosures are down.

Another significant fact is that the greatest number of beri-beri patients belong to the houses situated lowest, and to the lowest stories of those houses. Any one must be reminded by this fact of the great specific gravity of carbonic gases. This is all in favor of my theory, and I am glad to see that, unknowingly, you admit it. For, I repeat it, in attributing the beri-beri outbreak in Dublin to overcrowding you admit my carbonic-oxide theory; for how could the overcrowding act if not by the production of an excess of those gases?

ALBERT S. ASHMEAD, M. D.

COCAINE POISONING.

1207 E. MONUMENT STREET, BALTIMORE, November 1, 1894.

To the Editor of the New York Medical Journal:

SIR: Having occasion a few days since to remove an external hæmorrhoid from a woman who strenuously objected to chloroform as an anæsthetic, I used cocaine hydrochloride as a local destroyer of sensation. I regretted it very much, as the sequel proved, and it came near being a life-long regret. The amount used was *one* grain, which was injected into the tumor, and almost immediately the tumor was clamped and ablated, and the stump touched with the actual cautery. No special sensitiveness was experienced, and the patient was apparently all right. Fifteen minutes after the operation, while I was washing my hands preparatory to leaving the room, my patient suddenly complained of a stiffness of her fingers. On my reaching her the radial pulse could not be distinguished, the hands and arms were in strong tonic spasm, the heart was beating not over 40 a minute, the extremities were cold, with moist, clammy sweat, the mind was perfectly clear, and she complained of a strong sense of chest constriction. The pupils were widely dilated, and she complained of amaurosis and buzzing in the ears. She was apparently dying. I gave aromatic spirit of ammonia by the mouth and a hypodermic of whisky and strychnine, applied hot-water bottles to the feet as soon as they could be obtained, and persisted in artificial respiration for three quarters of an hour. The pulse slowly returned to the wrist, and gradually all the symptoms disappeared after giving me the fright of my life. I have rarely used the drug for this purpose, and, although I have frequently used chloroform, I have never had any insurmountable obstacles, but never have I seen such alarming effects from it as I did in this use of cocaine. The urine was also suppressed. I report this case simply with the hope that

it will prevent its further use except in very minute doses, if at all. Twelve hours after the accident no bad symptoms existed at all.

IRVING MILLER, M. D.

VASO-MOTOR NEUROSES.

LINCOLN, NEB., November 6, 1894.

To the Editor of the New York Medical Journal:

SIR: In the November 3, 1894, issue of the *New York Medical Journal* is an article by Dr. Culver, describing a very interesting case of some vaso-motor neurosis. If the doctor's suspicion is correct, that the patient may be an idiosyncratic victim of the odor or pollen of the *Humulus lupulus*, then no further examination of the case would be profitable, since idiosyncrasies are always laws unto themselves. I have under treatment a similar case, and am inclined to think that it belongs to the itching neurosis group of Crocker's classification of skin diseases. A review of the somewhat extensive subject of urticaria confirms me in this belief. It would be useful to know something of the hereditary history and personal peculiarities in Dr. Culver's case; in the absence of idiosyncrasy, considerable importance attaches to hereditary features of the disease. I would suggest that a reading of Dr. Osler's article, Hereditary Angio-neurotic Edema, as it appeared in the April, 1888, issue of the *American Journal of the Medical Sciences*, and an examination of the several valuable references he has mentioned, would remove much of the obscurity surrounding Dr. Culver's case.

J. S. LEONHARDT, M. D.

APOCYNUM CANNABINUM.

SYCAMORE, ILL., November 9, 1894.

To the Editor of the New York Medical Journal:

SIR: If Dr. Dukeman, of Los Angeles, Cal., and Dr. Lowrey, of Neola, Iowa, will read an article that was read before the Medical Society of the State of New York, at Albany in 1869, by Dr. Harvey Jewett, of Canandaigua, N. Y., they will both find much information about *Apocynum cannabinum* and its uses in valvular disease of the heart and dropsy in general. There is nothing new under the sun.

C. B. BROWN, M. D.

INGROWING TOE-NAILS.

CHICAGO, ILL., November 12, 1894.

To the Editor of the New York Medical Journal:

SIR: Apropos to a letter in your issue for November 10th by I. J. Reis, chiropodist, in which he speaks of causes other than badly fitting shoes that produce ingrowing toe-nail, I would state that in the obstetrical ward of the Chicago Hospital for Women and Children a baby was born with ingrowing toe-nail. When the infant was discharged from the hospital at two weeks old the nail had continued growing in. The mother was requested to return with the child in two or three weeks, but has failed to do so. The infant, to all appearance, was healthy.

Another case I recall was that of a bedridden patient in the surgical ward of the same hospital. She was a paraplegiac caused by an abscess of the vertebra in the dorsal region of the spinal column. She was in bed something over a year. The nail began to grow in during this time and was under surgical observation throughout its course. The pain and annoyance it caused the patient were some of the symptoms of returning sensation and motion to the limbs.

The notes from a case of exophthalmic goitre and "thy-reoidism" by M. Bécère, of Paris, also recall a case that occurred in my practice. An infant, female, was born with an

enlarged thyroid gland. The mother had exophthalmic goitre. Symptoms all marked, but not so extreme in severity as I have seen in other cases. The mother made an excellent recovery, and was dismissed at the end of two weeks after delivery with no apparent increase in the severity of her symptoms. The little one still had her goitre undiminished since birth. The nervous manifestations of the baby were those characteristic of "nervous" babies, so we were unable to distinguish them as having anything in particular to do with the enlarged thyroid.

ELIZA H. ROOT, M. D.,

Attending Physician to the Obstetrical Ward, Chicago Hospital for Women and Children.

THE SPREAD OF TYPHOID FEVER.

POMFRET, CONN., November 13, 1894.

To the Editor of the New York Medical Journal:

SIR: Dr. Duke's article on The Dissemination of the Typhoid Bacillus, in your issue of the 10th inst., recalls three cases in my practice that are interesting in that particular line. I saw the first patient on Sunday, August 26th. He had been indisposed for about seven days, but had not taken to his bed till the preceding Wednesday. On the Tuesday following my first visit rose spots appeared and confirmed the diagnosis made from the usual symptoms present at the first visit. The patient had the usual run, the fever terminating by lysis at the end of the fourth week. About three weeks after the first patient had recovered two other patients who had been stopping in a neighboring house came down with the disease. The people in this house had their water supply from the same source as the people in the house occupied by the first patient. Investigation showed a defective trap in the house of the first patient. The water supply was from a spring noted for its purity, not only in the common acceptance of the term, but from chemical analysis. Granting that the typhoid bacillus does not generate *de novo* from filth or defective drainage, these being only favorable conditions to their development, the following is the only tenable solution: Another family in which there had been typhoid moved into the house with the family of the first patient, bringing their household goods, which may or may not have been properly disinfected. The time, over a year, that had elapsed since the disease was present with the family who moved in seems, however, to preclude this conclusion.

S. BURDEN OVERLOCK, M. D.

UNDERSIZED BABIES.

ELIZABETHTON, TENN., November 13, 1894.

To the Editor of the New York Medical Journal:

SIR: I notice in last week's issue of the *New York Medical Journal* an article by Dr. L. W. Davis, of Knoxville, Tenn., calling the profession's attention to the undersize of babies in late years. I attended a lady in confinement on the 5th day of last May, and delivered her of a full-term male child weighing twenty-six ounces. The child was unable to nurse, and artificial nourishment was kept up for five days, when it died. If the child could have survived, beyond a doubt the result would have been in a few years a large, healthy child.

D. J. SMITH, JR., M. D.

ERGOT OF RYE AS AN OXYTOMIC.

MOLINE, ILL., November 14, 1894.

To the Editor of the New York Medical Journal:

SIR: I notice in the Journal for November 3d a reference to an article by Dr. J. G. Swayne, of London, on the subject of Ergot of Rye as an Oxytocic.

The best obstetricians have long since condemned the use of this drug as an oxytocic during the first and second stages of labor. The reasons why are stated in the above-mentioned article. Still, it must be admitted that the drug can be of service in tedious labor, especially in uterine inertia.

The writer recently had occasion to test the efficacy of ergot in a case of uterine inertia, but with different results from that of Dr. Swayne.

I was called at 3 A. M. to attend to Mrs. H., primipara, aged twenty-nine years, robust and well formed. Labor pains had begun about ten o'clock in the evening, at which time the amniotic fluid had escaped. Upon examination, I found the woman in the first stage of labor. The pelvis was large and roomy, and the foetal presentation was normal. As the pains were weak and infrequent, I returned home.

At 10 A. M. I visited her again, and upon examination I found the os dilated to about the size of a silver dollar. As the pains were still infrequent, I left with the instruction to call me when the pains were getting stronger.

At 1.30 P. M. I was hastily summoned. The labor pains were then strong, regular, and frequent. On examination the os was found fully dilated and the head of the foetus well down in the pelvis. I calculated on a quick delivery. But in a short time the pains became weaker and at two o'clock ceased altogether. I waited until four o'clock, but there was still a complete uterine inertia. Forceps delivery was not permitted, and as I feared that the inertia would continue after the extraction of the foetus, and the resultant post-partum hæmorrhage, I did not urge the instrumental delivery. There was no abnormal obstruction to the advance of the foetus, and I decided to administer ergot, for the first time in my obstetrical practice, before the completion of the second stage of labor. A teaspoonful of the fluid extract was given. The result was *nil*. Half an hour later another dose of one drachm was administered, but no uterine contraction had been excited in an hour from that time. As the ergot was of a reliable preparation and as I had had favorable results from its use a few days before in a case of post-partum hæmorrhage, I came to the conclusion that the uterus in this case might have refused to respond out of pure contrariety.

Remembering that quinine had done me good service before, in a few cases where the pains had been weak, by its stimulating effect, I administered eight grains at half past five o'clock. The result was all I could wish for. At six o'clock the pains began, and twenty minutes later the woman was delivered of a large, healthy female child. The placenta followed a few minutes later. There was very little loss of blood.

The deductions that can be drawn from this case seem to be:

1. That, sometimes at least, ergot of rye is unable to initiate labor pains anew in uterine inertia.

2. That in quinine we have a safe and powerful uterine stimulant.

E. A. EDLÉN, B. A., B. S., M. D.

APOMORPHINE AS AN EXPECTORANT.

JERSEY CITY, N. J., November 16, 1894.

To the Editor of the *New York Medical Journal*:

SIR: Dr. S. F. Morris, in his letter to the *Journal* in regard to the "unusual effects of apomorphine," states that as far as he knows this drug is only used as an emetic. Hare, in his *System of Therapeutics*, vol. ii, pp. 546, speaks of it highly as an expectorant. I have found it very efficient, especially in the catarrhal stage of whooping-cough.

JOHN E. WEST, M. D.

Proceedings of Societies.

AMERICAN ASSOCIATION OF GENITO-URINARY SURGEONS.

Eighth Annual Meeting, held in Washington, May 29, 30 and 31, and June 1, 1894.

The President, Dr. GEORGE CHISMORE, of San Francisco, in the Chair.

Modifications of Bigelow's Operation for Stone in the Bladder, Designed to Meet Cases in which the Prostate is Enlarged.—The PRESIDENT read a paper on this subject. He stated that the difficulty of clearing the bladder of stone by Bigelow's method increased in direct proportion to the amount and character of the encroachment upon that viscus by senile enlargement of the prostate gland. The modifications of the classical operation suggested by the author were as follows:

1. Substituting local for general anæsthesia in cases where an anæsthetic was required.

2. Short sittings, continuing the crushing only so long as fragments could easily be found, washing out the pieces, and stopping the moment symptoms of exhaustion; spasm of the bladder, or unusual distress occurred.

3. Removing the remaining pieces after the symptoms due to the previous operation had subsided—as soon as they could be felt with the searcher (usually within a week)—and repeating the process until the bladder was cleared.

When a patient with senile enlargement of the prostate and a stone presented himself for treatment, he was usually dependent on the catheter—had catheter stricture—and required a course of dilatation of the urethra as a preliminary to attacking the calculus. As soon as a No. 16 or 18 Van Buren sound would pass, the speaker said that he seized the first favorable opportunity and operated on the patient in his office. The bladder was emptied and from one to two fluidounces of a four-per-cent. solution of cocaine hydrochloride were injected; the lithotrite was then gently inserted and the stone seized and crushed. If, during this procedure, he became aware that quite a large fragment had apparently vanished, he made no prolonged attempts to find it. It was perhaps in some pouch, or lying in a fold between two projecting knobs of the prostate, or firmly imprisoned in a deep sulcus formed by the bladder wall doubled upon itself by the encroaching gland; in any case, it was entirely beyond the reach of the instrument, and there it would remain until it became slippery with mucus or in some other way was dislodged. When no more pieces could be found, the lithotrite was removed, a catheter as large as would pass was inserted, and the bladder was washed with a warm borated solution until the fragments ceased to come. The patient was then sent home with directions to keep quiet. In the great majority of patients operated on in this way there were no after-symptoms; they were better at once. In fifty-two cases reported by the author, the youngest patient was fifty-one; the eldest, seventy-four; the average, 66.36 years. There were twenty-two phosphate, twenty-four oxalate, five urate, and one mixed oxalate and urate calculi. The smallest stone weighed, dry, seven grains; the largest, one thousand grains; average weight, a hundred and forty-nine grains. There had been no deaths and no serious complications attributable to these operations.

In connection with his paper the president presented a number of instruments and specimens.

Dr. L. BOLTON BANGS, of New York, said that he had been much interested in Dr. Chismore's paper, particularly in that part which referred to performing the operation under local anæsthesia. The class of patients in whom this operation was

called for were especially susceptible to the secondary bad effects of general anæsthesia, which was apt to produce congestion of the kidneys or even actual inflammatory changes in them.

Dr. FRANCIS S. WATSON, of Boston, said that were it not for the fact that Dr. Chismore, in his paper, had presented such a strong array of figures, he would feel inclined to regard the method of operation recommended by him as a distinctly retrograde one. The Bigelow operation had its chief value in the fact that none of the fragments were left behind, and the high mortality following lithotripsy in former times had been due, in all probability, to the presence of such fragments. He did not see why this should not be so in Dr. Chismore's cases, where a large fragment was often left in the bladder. In cases where the hypertrophied prostate offered serious impediment to the passage of the evacuating tube through the deep urethra, the speaker was in favor of making a perineal incision, dilating the deep urethra, and then rapidly crushing and evacuating through the opening thus afforded. By this procedure we obviated the danger of injuring the deep urethra; death in cases occurring in old men was usually due to injury in this region.

Dr. W. K. OTIS, of New York, said that in cases where the prostatic enlargement was considerable he felt inclined to favor the suprapubic operation, for the reason that it enabled one to entirely empty the bladder of stone; furthermore, the prostate itself could be operated on at the same time, if it was deemed advisable, and the bladder drained.

Dr. JOHN P. BRYSON, of St. Louis, said that he was fully in accord with the statement made by Dr. Watson regarding the bad effects that were apt to follow instrumental manipulation of the prostatic urethra in these cases. In cases where the stone formation was secondary to bladder inflammation, associated with a certain amount of inflammation of the prostate, he considered it advisable to drain the bladder.

Dr. JAMES BELL, of Montreal, said that he was surprised to learn that Dr. Chismore was in the habit of injecting such large amounts of cocaine into the bladder without producing dangerous results.

Dr. EDWARD MARTIN, of Philadelphia, said that, in view of the fact that chloroform had lately been shown to be even more irritating to the kidneys than ether, the employment of local anæsthesia in these cases was of great practical importance.

Dr. SAMUEL ALEXANDER, of New York, said that in patients with enlarged prostate and thickening and hypertrophy of the bladder, with excessive irritability of that organ, it appeared to him that partial removal of a stone and leaving a fragment behind would be exceedingly disagreeable, if not dangerous.

Dr. WILLIAM JUDKINS, of Cincinnati, said that he had employed cocaine in much smaller quantities than those mentioned by Dr. Chismore, and in some instances quite alarming results had followed.

Dr. BANGS said that by the suprapubic method the bladder could best be drained, and that operation was certainly indicated in some instances; in others, some modified form of perineal operation was better. After making the perineal incision he had in some cases stretched the prostatic urethra so as to gain ready access to the bladder.

The PRESIDENT stated that since June, 1889, he had invariably used local cocaine anæsthesia in operating for stone. In a small proportion of these cases mild toxic symptoms, such as nervousness, etc., had been observed, but these had never been sufficiently pronounced to induce him to suspend the operation or discard the use of the drug. In patients with prostatic enlargement the bladder was far more tolerant than in young persons, and a fragment of stone left behind did not give rise to much inconvenience. A person was no safer from recurrence of stone after suprapubic cystotomy than he was after lithola-

paxy, and the latter was certainly by far the simpler and easier of the two operations.

A Summary of the History and Present Position of the Operation of Castration for Hypertrophy of the Prostate.—

Dr. J. WILLIAM WHITE, of Philadelphia, read a paper on this subject. He referred to the comparison long ago made by Velpeau and Sir Henry Thompson between prostatic and uterine fibromyomata, and stated that in a number of experiments on dogs made under his direction, castration had been followed by rapid atrophy, first of the glandular tissue, and then of the muscular elements of the prostate.

Theoretically the line of argument was as follows: The prostate, while not embryologically the true homologue of the uterus, was developed from structures quite distinct from those which formed the urinary passages. The structure of the prostate and that of the uterus were strikingly similar. The growth of the organ was in direct relation with the sexual life of the individual; its overgrowth occurred at a period when the sexual life was fading out, but was usually not extinct. The reproductive life ended sooner in the female than in the male, and accordingly we found fibromyomata appearing earlier in the former than in the latter. The histology of the growths and of their varieties was remarkably alike in the two sexes. The uterine tumors did not appear after the menopause, or, if present, underwent atrophy at that time. After at certain period of life there was no increase in the tendency to enlargement of the prostate, but rather the reverse. In the female, oophorectomy caused a disappearance of these growths and atrophy of the uterus itself. Castration almost certainly had the same effect upon the normal prostate.

The speaker then reviewed the literature of this subject, and reported a number of cases in which castration had produced a marked diminution in the size of an hypertrophied prostate.

Dr. BANGS said that any means whatsoever which promised some relief to this class of cases was certainly worthy of attention. In many of these cases long-continued drainage would achieve very good results. If the enlargement of the prostate was dependent on the activity of the testes, why not ligate the vessels of the organs instead of performing castration?

Dr. BRYSON said that in one case of prostatic hypertrophy that had come under his observation double castration had been performed, because both the glands had been involved by tubercular disease. Their removal had been followed by a distinct improvement in the man's symptoms, and there had been a marked diminution in the frequency of his urination, especially at night.

Dr. W. T. BELFIELD, of Chicago, said that it had long been known that castration would produce atrophy of the normal prostate. We must bear in mind, however, that in the enlarged prostate there were certain elements or conditions which were not found in the normal organ—namely, the growth of fibrous and adenomatous tissue, or a mixture of both, and it was a question whether these elements were affected by the cessation of sexual activity.

Dr. WATSON said that in two cases he had seen atrophy of the prostate on one side produced by destruction of the corresponding testis, due to suppuration. In both of these cases the prostate had been enlarged for years.

Dr. MARTIN said that in the case reported by Dr. White there had been a truly remarkable change produced in the size of the prostate.

Dr. ALEXANDER W. STEIN, of New York, said that the bladder in these cases was not always relieved by simply removing the mechanical obstruction at the neck. Owing to the cystitis the bladder became insensitive and was quite unable to empty itself.

Dr. ALEXANDER said that he had recently seen three cases of double undescended testis in which the organs had been removed and had been found to be atrophied. In two of the cases the testes had been fibrous, and no healthy spermatozooids had been found in them. In all of these cases a rectal examination had failed to reveal that the prostate was diminished in size.

Dr. BELFIELD said that he had seen two cases of unilateral undescended testis with pronounced atrophy, with atrophy of the prostate on that side.

Dr. BANGS said that in one case of cryptorchidism that had been reported the man had had full sexual powers and had been convicted of bastardy.

Dr. BRYSON said that the testes might be concealed and yet have that nervous connection which would maintain their functional activity.

Dr. WHITE said that in Dr. Smith's case he did not think that drainage of the bladder could have been employed with any prospect of success, and he could not recall any case in which drainage alone had given results comparable with those obtained by the removal of the testes. Tying the vessels of the testis was apt to be followed by necrosis of the organ.

A Suggestion as to the Removal of Adeno-myomatous Growths from the Prostate.—Dr. ALEXANDER read a paper on this subject in which he called attention to the various methods which had been employed for removing prostatic hypertrophy, and stated that he favored the double incision as recommended by Belfield. The modification suggested by the author consisted in removing the obstructing portions of the enlarged prostate by enucleation after stripping up the mucous membrane from the submucous tissues by means of the finger passed into the perineal opening. In one case reported by the author the patient had been a man aged fifty-three years, who had given a history of prostatic obstruction of two years' duration. The bladder had been opened above the pubes, and a perineal incision had been made extending as far as the apex of the prostate. The mucous membrane of the prostatic urethra had been stripped up and the adenoid growths removed with the prostatic forceps through the lateral opening.

The advantages alleged by the author for this method were that the mucous membrane remained intact; that the chances of hæmorrhage were greatly diminished; that the prostatic sphincter was preserved; and that the entire obstructing portions of the prostate could be removed with greater ease.

Dr. WARSON said that the operation of enucleation in reducing the size of an enlarged prostate was an important advance over the older method of biting or chewing away the projecting masses. It would be interesting to know in what proportion of cases enucleation was possible. He said that he still employed the Peterson bag in these operations for the purpose of pushing the bladder firmly against the abdominal wall.

Dr. BELFIELD said that Dr. Alexander had carried the enucleation process to a much greater and more successful issue than any who had preceded him. He had also been more systematic in removing the mucous membrane so as to make enucleation possible.

Dr. WHITE said that in all this discussion about operations on the prostate no mention had been made of how little we might take away from the gland with resulting benefit to the patient. There seemed to be a direct ratio between the amount of gland tissue removed and the death-rate.

Dr. BRYSON said that he had noticed on several occasions that the source of the severe bleeding in these cases was the mucous membrane and the submucosa. He did not see how the amount of tissue removed could materially affect the mortality. He still employed the Peterson bag, and had never performed a prostatectomy without it.

Dr. BELL said that in his experience the fatal results after prostatectomy seemed to have been due to some form of toxæmia rather than to hæmorrhage.

Dr. ALEXANDER expressed the opinion that the mortality rate bore little or no relation to the amount of prostatic tissue removed. Of more importance in this respect was the condition of the kidneys and the upper urinary tract.

(To be continued.)

AMERICAN LARYNGOLOGICAL ASSOCIATION.

Sixteenth Annual Congress, held in Washington, D. C., on Wednesday, Thursday, and Friday, May 30 and 31 and June 1, 1894.

The President, Dr. D. BRYSON DELAVAN, of New York, in the Chair.

(Continued from page 604.)

Nasal Polypus; its Association with Ethmoiditis, and its Treatment by Resection of the Middle Turbinate Body.—A paper on this subject was read by Dr. W. E. CASSELBERRY, of Chicago.

Dr. W. H. DALY, of Pittsburgh, said that one of the most valuable points in the paper was the statement regarding the removal of the bone beneath the polypus in several severe cases. He believed the removal of diseased growths without including a section of the bone beneath was a futile task.

Dr. F. H. BOSWORTH, of New York, said the paper had given him the impression that ethmoiditis was the most frequent complication of nasal polypus. This idea he was hardly prepared to accept. On the contrary, he thought that nasal polypus was the result in many cases of ethmoid disease and rarely if ever the cause. This development, however, of polypi was purely inflammatory, he thought, in its origin, and not through what Woakes called "necrosing ethmoiditis." This question of necrosis had been a little exaggerated. It was a question whether we should call it necrosis or not. No one could enter fully into this subject who had not made examinations of such cases. His probe told him that what he felt was not necrosis, but rather gave the sensation of a bone covered by a very soft and thin membrane—not a dead bone, but still a live bone. The author had spoken of the odor of necrosed bone, but in his experience he did not get that odor, but rather the odor of sulphureted hydrogen and possibly that of pus. The more he saw of these cases the more he was disposed to say there was but one cause—that which we call myxomatous, and which rapidly advanced from the outside.

The speaker then asked to be allowed one word in friendly criticism. It seemed to him that the further we went into this matter the less we talked about reflexes. In his opinion an inflammation extending to the ethmoid cells gave rise to vaso-motor changes in the mucous membrane due to some effect on or interference with the vaso-motor center itself. These vaso-motor changes, however, were not inflammatory.

Dr. BRYAN stated that he did not believe in the theory of Woakes that necrosing ethmoiditis was the cause of nasal polypi, although they were frequently associated. Regarding the examination of the nose he found the probe deceptive, for frequently small spicula of bone, the product of an inflammation of the muco-periosteum covering the turbinates, are thrown out across the vestibule of the nose, and the probe coming in contact with them gives one the impression of the presence of necrosis when that condition is not present. A much more satisfactory idea of the interior of the nasal cavities can be obtained by examination with the little finger, a method suggested to me by Dr. Harrison Allen.

The theory of Dr. Bosworth that this is a myxomatous inflammation is the true one, and the only logical treatment is that described by Dr. Casselberry in his very excellent paper.

Dr. MACKENZIE remarked that while he believed that ethmoiditis is responsible for many cases of rebellious catarrh which can be relieved only by surgical means, he wished to advocate more conservatism in the treatment of the condition. In many cases of nasal polypi, for example, the associated purulent discharge will cease after removal of the growth or the use of simple local medication. Much of the error in the practical handling of these cases has arisen from the mistaken theory that ethmoiditis is the cause of polypi. Such an ætiological relationship might exist in certain cases—for example, syphilitic or traumatic cases—but aside from these conditions it is extremely rare.

Dr. F. W. HINKEL, of Buffalo, said he wished to second what Dr. Mackenzie had said of the possible dangers of interference with the ethmoid bone.

He recalled a case in point from his own experience. Three years ago he had removed the anterior extremity of the left middle turbinate, using Knapp's angular scissors and Bosworth's forceps. The patient was a woman about forty years of age. She had always been in excellent health, with the exception of a troublesome asthma. He performed the operation to relieve pressure on the septum and for hidden polypi, using cocaine. As he snapped the forceps and removed a piece of bone, she placed her hand to her head and complained of severe pain. She recovered after a while and, leaving his office, went to her boarding house. Three days afterward a medical friend asked him to go to see her with him. He then learned that after she had reached her room she became demented and said nothing but "yes" to everybody who spoke to her. She recognized him when he entered the room. In about four weeks she died. The prominent symptoms at the last were those of brain abscess. Dr. Roswell Park trephined the frontal bone above the left orbit. About half an ounce of pus was evacuated with a trochar. Patient died next day. The post-mortem examination showed the brain filled with multiple abscesses. There was a thrombus of the left middle meningeal artery. Unfortunately no examination of the heart was made. The thrombus might have originated from embolism from a detached valvular vegetation. He had been unable to trace the steps of the abscess. There were no evidences of intranasal inflammation.

It might have been a latent abscess, but all her symptoms followed the operation. He had since performed the operation not infrequently, but always with a recollection of that case.

Dr. J. C. MULHALL, of St. Louis, said he hoped there would be a full and free discussion on this subject. He was glad to hear the experience of Dr. Hinkel with regard to hidden polypi. The general profession was absolutely ignorant of the relations of soft nasal polypi to bone disease in the nose. He had seen a number of cases in which specialists had removed polypi, and had told their patients they would have no more trouble. Some of them had been having these polypi removed for twenty and thirty years. He had seen such cases, and they had all had bone disease of the adjacent cavity, usually the ethmoid. Grünwald, of Munich, had written an excellent book on purulent discharges from the nasal cavity, and had shown the value of carefully studying the conditions of the ethmoidal sinuses.

Of course; all radical procedures were attended with more or less danger, but when patients had had polypi for perhaps twenty or thirty years they were willing to undergo a severe operation in order that they might be rid of these polypi permanently. He had been greatly interested in Grünwald's account of those who had recovered from melancholia, and those whose sense of smell had been restored, after a purulent dis-

charge of many years' standing had been cured. So much impressed had he been with this writer's description of the diseased conditions present in recurrent soft polypi that he obtained from Grünwald a set of his instruments. He had been able in one case, where as a complication eczema of the upper lip had existed for six years, caused by polypi and purulent rhinitis, by curetting the ethmoid cells, to cure the eczema. The nasal curette and bone forceps were used, and the anterior ends of the middle turbinated bones were removed in order better to enter the ethmoidal sinuses.

Dr. JONATHAN WRIGHT, of Brooklyn, said he had been deeply interested in the valuable paper. Dr. Mackenzie's advice to the younger men in regard to a better knowledge of anatomy was very good and quite acceptable. There was one point which was very important. When the bone was diseased the formation of a communication with the cerebral cavity was very easy. He was surprised that the accident did not happen more frequently. He had had occasion quite recently to open quite a number of skulls, and this had taught him that it was very easy indeed to make an opening into the cerebral cavity. All skulls were not alike, some requiring considerable force to make an opening into the cerebral cavity, while others, being mere shells, were very easily punctured. He was in accord with Dr. Mackenzie concerning trephining. He differed somewhat from the reader of the paper regarding the removal of the anterior end of the middle turbinated bone. He had used serrated scissors and many other instruments, including some which he had had made according to Grünwald's published directions. He had found that there must have been some mistake in these directions, as the instruments were about four times too large. At any rate, their dimensions were greater than those of American noses, and consequently they could not be used for nasal operations in this country. They should have been made about the size of those presented by Dr. Mulhall.

Dr. WILLIAM H. DALY, of Pittsburgh, said that no case should be considered cured until one, two, three, four, or even five years had elapsed without a return of the polypi. The question was how to get a cure. And the way to get it is to change the soil and subsoil from which the polyps grow, by after-treatment.

Dr. CLARENCE C. RICE, of New York, said that he stood on the side of Dr. Mackenzie regarding the radical treatment of ethmoiditis. The removal of polypi and special resection of the middle turbinated bone were well enough, but he deprecated the wholesale removal of the middle turbinated bone.

Dr. F. H. BOSWORTH, of New York, said that if the disease extended into the middle turbinated bone it should be attacked there, but only by a radical operation. He knew of no case on record which had succumbed except to radical methods. He would attack it unhesitatingly with the snare and with the drill. From his experience with the drill he thought he could safely say that there was no other instrument with which one could so delicately gauge what was being done. His plan was to drill a little into the ethmoid and then feel with the burr; then drill a little further and once more feel with the burr; and thus push ahead guardedly and safely in the effort to break down the trabeculæ. It should be remembered that one had to deal with a great mass of honeycomb cells filled with diseased tissue, and that there was a considerable intracellular pressure. That pressure must be relieved. It could not be done by the cautery; it could only be done by surgical measures. From his experience he regarded such measures as unattended by dangers. In one suppurative case of seventeen years' standing he had effected a cure by this method, and the same result could be obtained in other cases, suppurative or non-suppurative.

Of course, in the non-suppurative cases the percentage of successful results is much larger.

Dr. CASSELBERRY, in closing the discussion, said that he thought some criticisms of the paper resulted from an incomplete understanding of the classification proposed. For instance, the term "vaso-motor ethmoiditis" was introduced more as a variety of "myxomatous ethmoiditis," as a clinical recognition particularly of those cases associated with asthma. Dr. Hinkel's unfortunate case, not exemplifying any form of myxomatous degeneration of the middle turbinated body, could not be regarded as entirely pertinent to the subject of resection of the middle turbinated body when that bone, as was pointed out in the paper, had undergone rarefaction or cystic change, which was usual with myxomatous degeneration. Its resection was then not only easier to accomplish, but it was followed by less inflammatory reaction and hæmorrhage than when the bone of normal or increased thickness and density was resected, as in Dr. Hinkel's case.

The instruments of Grünwald, which he saw now for the first time, seemed well adapted to the purpose.

(To be continued.)

AMERICAN NEUROLOGICAL ASSOCIATION.

Twentieth Annual Meeting, held in Washington, May 30 and 31, and June 1, 1894.

The President, Dr. B. SACHS, of New York, in the Chair.

The President's Address (see page 257) was on the subject of Neurology and General Medicine.

Myxœdema Treated with Sheep's Thyreoid.—Dr. SAMUEL AYRES, of Pittsburgh, read a paper upon this subject. He said that the marvelous results of this comparatively new treatment had been referred to, and the statement made that, though relapses were frequent after suspending the use of the medicine, yet the symptoms were again quickly controlled by resuming treatment and giving an occasional dose. It had been particularly advised that at the start small doses should be administered—from one to three grains of desiccated powder in capsules or tabloids once or twice daily, and the doses gradually increased to five grains three times daily, if required. Large doses at the outset had been frequently followed by dangerous symptoms.

Owing to the favorable results from thyreoid in some skin diseases, in obesity, and in a case of melancholia, the paper was chiefly devoted to suggestions as to the possibilities of the preparation in certain non-myxœdematous diseases, and it was recommended a careful trial in selected cases of acute dementia, mania, melancholia, epilepsy, chorea, tetanus, anæsthesia, and erysipelas. Its indiscriminate employment was strongly discouraged.

Dr. M. A. STARR, of New York, presented five photographs of patients with myxœdema, in three of whom unmistakable improvement had been shown. He had used various preparations of the gland, but there had been serious objections to many of them. He had of late made satisfactory use of the cheapest preparation on the market, which was put up in the form of tabloids, each containing five grains of the extract. He had often been consulted on account of the mental symptoms which were, in many instances, prominent in this disease. He had frequently observed melancholia with suicidal tendencies. In eight patients there had been symptoms of dementia. He had found the remedy of use in neuroses of the menopause. In a number of cases of acromegaly only two had seemed to be benefited. The headache had been relieved, and it had produced a feeling of *bien-être*. His experience with it in paralysis agitans, epilepsy, and progressive muscular atrophy had been negative.

Dr. GEORGE W. JACOBY, of New York, agreed with the previous speaker. He spoke of the difficulties in the diagnosis of true myxœdema, and reported a case and presented photographs of a child fourteen years old. There had been evidence of muscular dystrophy in the lower extremities. He thought that further experience might show a relationship between these two affections.

Dr. E. D. FISHER, of New York, thought that the use of thyreoid extract should be confined to the treatment of myxœdema. There had been no rational indication for its administration in other diseases.

The PRESIDENT dissented from this view, and believed it was but fair to try this medicine empirically, as we were not as yet familiar with the true function of the thyreoid gland.

Dr. F. X. DERGUM, of Philadelphia, reported the case of a patient who had been successfully treated by the extract.

Dr. L. C. GRAY, of New York, stated that all animal extracts had a similar temporary effect. A number of cases of myxœdema had relapsed. He had used the thyreoid extract in only one case, with the usual good results.

Dr. LEONARD WEBER, of New York, said there was not a single case on record that had been cured. In one case under his observation the result had been remarkably good. Relapse was apt to occur unless the use of the remedy was continued. He believed that greater and more permanent relief could be obtained by surgical means.

Dr. WALTON, of Boston, mentioned a case in which improvement had set in after the use of only five grains three times a day.

The Thyreoid Theory in Graves's Disease. Two Patients Treated by Thyreoidectomy.—This was the title of a paper by Dr. J. ARTHUR BOOTH, of New York. After referring to the recent investigations as to the functions of the thyreoid gland and the internal administration of the thyreoid extract in the treatment of myxœdema, he spoke of the various theories that had been advanced in regard to the origin of Graves's disease. Two cases in which the patients had been treated by thyreoidectomy were reported, with the following conclusions: 1. It was by no means decided that a mere excess of the thyreoid secretion was the sole and essential factor in Graves's disease; but, as microscopical examination had demonstrated an enormous hyperplasia of the secreting structure, it was certainly reasonable to suppose that these changes must have some profound effect both on the quantity and on the quality of the secretion. 2. If altered structure and not size was the test of the disease, then thyreoidectomy should be considered, even in those cases where there was little or no enlargement of the thyreoid. 3. Cases of Graves's disease might be entirely cured by thyreoidectomy. How this was to be brought about was not clear as yet. It might possibly be by one of three ways—viz., a diminution of the functional activity of the gland substance; a relief of the stretching and irritation of the sympathetic nerve fibers; or finally the removal of pressure.

Dr. J. J. PUTNAM, of Boston, said that in one English case reported the patient had seemed to be cured after the use of thyreoid extract. He spoke of two patients treated by operation. One had improved and the other had died. In both patients the pulse had been excessively rapid. He thought it better to operate early, and not to wait until the heart's action had become seriously impaired.

Dr. J. MADISON TAYLOR, of Philadelphia, had used thyreoid extract in Graves's disease without any perceptible improvement. He spoke of a case which had occurred in a child two years of age.

Dr. W. J. MORTON, of New York, believed that patients had been cured by the use of electricity. He had often seen recov-

ery after three or four months' treatment. He preferred this to any other measure.

Dr. DERGUM thought it difficult to explain the favorable result which occurred after operative measures, and mentioned an instance where the gland had been exceedingly small.

Dr. W. A. HAMMOND, of Washington, asked if Dr. Morton had used any other remedy in conjunction with electricity. He had been accustomed to diminish the amount of fluids taken and to give digitalis or hyoseyamine with satisfactory results.

Dr. MORTON replied that he had used electricity only.

The PRESIDENT thought that many cases were curable, and referred to the case of a young woman in whom the disease had developed rapidly after a sudden fright. She had improved after a prolonged rest in bed, had subsequently married and given birth to a healthy child, and had completely recovered from her symptoms of Graves's disease.

Dr. BOOTH said that the alleged danger from the operation was not borne out by statistics. In his case the patient had done well. Galvanism had been faithfully used for seven months without satisfactory results.

Exophthalmic Goitre cured by Thyroidectomy.—Dr. FREDERICK PETERSON desired to put on record a case of exophthalmic goitre that had been cured by thyroidectomy. The chief points in the case were as follows: The patient was a woman, thirty-four years old, and a native of Sweden. She had consulted him in 1888 for certain symptoms that had been developing for seven years. There had been marked tachycardia and the pulse rate had been 120 during the several months she had been under treatment. There had been considerable proptosis. The von Graefe symptom had been absent. Tremor of the hands and fingers had been extremely marked. Hyperidrosis and flushing of the cutaneous capillaries had been noticeable. The thyroid gland had been enlarged, especially in the left side, where the growth had measured three inches in diameter and had been very prominent. The thyroid tumor on the left side had occasioned pressure and a good deal of subjective distress, so that he had advised the removal of that lobe. At that time the patient had been very miserable, and her work, upon which she had been dependent, had been interfered with, so that she had concluded to accept his advice. She would not go into a hospital here for the purpose, but as she had intended going to Sweden for the summer, she had waited until then, and the whole of the left lobe had been removed by Dr. Hallen, of Linköping, a year after Dr. Peterson had first seen her. During that year the treatment had been with galvanism, digitalis, and the other usual remedies tried *seriatim*, but without amelioration of the symptoms.

Improvement had begun immediately after the operation in 1889. The speaker had seen her very shortly afterward, and there had been diminution of the tremor, the exophthalmia had been lessened, the subjective symptoms had disappeared, and the tachycardia had grown less and less. About a month ago, five years after the thyroidectomy, he had examined her again. There was no proptosis whatever, no tremor, no tachycardia, no thyroid swelling; in fact, the patient was well, and had been able to carry on her hard work steadily ever since. Nothing remained of the trouble but a somewhat rapid pulse, which varied from 90 to 100.

Experimental Investigations on the Physical and Chemical Action of the Galvanic Current upon the Living Organism.—Dr. G. W. JACOBY and Dr. F. SCHWYZER, of New York, presented a paper with this title. The authors, recognizing that our scientific comprehension of the electrodynamic curative action of electricity had been obstructed by the direction as well as the manner in which the electro-physiological work had thus far been carried out, thought that this obstruc-

tion could be met by the study of the chemical and physical actions of the galvanic current upon the simplest form of the organism, the living cell. With a view to answering the question, Did the galvanic current produce any discoverable changes, physical or microchemical, in the single cells of the body? the authors had undertaken a series of experiments upon animals (frogs, rabbits, and guinea-pigs) and man, the report of which was here presented in the form of a preliminary communication.

The certain and positive results thus far obtained were: 1. That by the passage of the galvanic current the red blood-corpuscles under the influence of the positive pole swelled up and became increased in size, while under the influence of the negative pole they became crenated and shrunken. 2. That, two animals being fixed back to back, and a current passed through both from chest to chest, the entire blood in the animal acted upon by the positive pole would contain more than twenty per cent. less alkali than that of the animal which had been exposed to the influence of the negative pole.

While the authors believed that the majority of cells in the living body were influenced by the cataphoric action of the galvanic current, they were not willing to express an opinion whether, and as to what extent, the physiology of the cells was thereby altered; on the other hand, the decrease of the alkalinity of the blood by means of the current must have a very great influence on cell-life; this was shown by other experiments which the authors had made upon spermatozooids. This influence consisted in the production of a marked functional activity in the neighborhood of the cathode on account of slightly increased alkalinity, and reduced functional activity at the anode in consequence of decreased alkalinity. The results of further experiments as well as therapeutic deductions were promised in the near future.

Dr. W. J. MORTON said that as for the results which had been obtained, attributed to the cataphoric effect, they had seemed to be subversive to what was usually believed and taught, for it had thus far been accepted that the tissue at the negative pole had its fluidity increased, while that at the positive pole had its fluidity decreased.

Again, as to the action of the galvanic current in producing acidity of tissue at the positive pole region and alkalinity at the negative, he welcomed the experimental evidence furnished by the reader, which we could accept, that this effect extended widely into the intrapolar region and thus influenced the irritability of tissue as an anelectrotonus and catelectrotonus. This physical explanation of physiological states had first been made by von Humboldt, who had attributed the increased response to the excitation of the negative pole to the increased alkalinity produced in an already alkaline tissue by that pole, and the decreased response to the positive pole to the fact that that pole produced an acid reaction.

The speaker went further than this, and suggested as an explanation of the increased response to the positive pole in the reaction of degeneration of Erb that the muscle degenerating had an acid reaction, and therefore responded most vigorously to the acid—viz., the positive pole.

As to alkalinizing the blood electrically, we might perhaps do this better with alkalies administered by the mouth, but we could not, with drugs, do what Dr. Jacoby had done and render a tissue less alkaline or more acid. Therefore the local action of electricity in this respect could not be otherwise effected.

Dr. JACOBY asked the society to look upon this work in the light of a preliminary communication, as other experiments, which would certainly be productive of positive results, were in progress.

A Neurological Percussion Hammer.—This was the subject of a paper by Dr. WILLIAM C. KRAUSS, of Buffalo, who

said that in appearance the hammer resembled the ordinary percussion hammer, such as was employed more especially on the continent, and particularly in France and Germany. It was therefore primarily a hammer, and the neurologist might use it for testing the tendon and muscular reflexes, and for percussing the spine and head. As the handle was made of hard rubber it became warm on friction, while the head, made of metal, always remained cold. Thus we had the means for examination for thermoanæsthesia. The cap on the small end of the hammer head was removable, and exposed a triangular-shaped spear about a sixth of an inch long. The other end of the head had the rounded rubber point, thus furnishing a sharp and dull point for examination for anæsthesia. The spear was divisible, one half remaining fixed in the hammer head, the other half sliding upon a scale graduated in millimetres and inches, and forming part of the handle of the hammer, thus making an excellent æsthesiometer; on replacing the cap and removing the cap at the large end of the hammer, a camel's-hair brush was exposed, giving a soft and the metal end a hard surface for examining the sensation. Thus we had, in one instrument, nearly all the apparatus necessary for making an examination of a nervous patient.

Non-operative Treatment of Metatarsalgia.—Dr. V. P. GIBNEY, of New York, read a paper with this title. He offered as a substitute for excision of the distal end of the fourth metatarsal bone or the branch of the peroneal nerve, a boot constructed on a Spanish last, with a heel that was a combination of an English and a French heel. The boot thus built transferred the weight from the ball of the foot to the plantar region just back of the ball of the foot to the heel and to that portion of the shank just anterior to the heel. The chief point that he insisted on was a snug fit around the instep shank and a rather loose toe portion. The boot had been made by an orthopædic shoemaker under his direct supervision, but could be easily imitated. A number of successful cases were reported.

Dr. CHARLES K. MILLS, of Philadelphia, had been in the habit of recommending a similar shoe to that advised by Dr. Gibney. Some patients, however, could not be relieved by any form of shoe, as a neuritis might have become established. Operative means would then become necessary.

Dr. PUTNAM considered it of value to make a carefully adjusted opening in the inner sole of the shoe.

A New Neuroglia Stain.—Dr. W. J. MORTON, of New York, presented some microscopic slides showing the new neuroglia stain of Weigert, which had been presented to him by Dr. Weigert on a recent visit to his laboratory in Frankfurt. The neuroglia fibers were stained blue, while the nerve elements were either not stained at all or at most very faintly. The medullary sheaths did not accept the stain, and thus the field was left clear for the differentiation of the neuroglia fibers. Dr. Weigert was not yet quite ready to publish this new stain, although he had been at work upon it for five years; no specimens had hitherto been exhibited on this side of the Atlantic.

Multiple Neuromata.—Dr. MORTON also read by title a paper entitled A Case of Multiple Neuromata, with an Exhibition of Microscopic Sections of a Large Neuroma Removed from the Ulnar Nerve.

The tumor had developed upon the ulnar about halfway between the elbow and the wrist, and was of about the size of a hen's egg. On cutting down upon the mass, with a view to severing and suturing the nerve, if necessary, or to dissecting out so far as possible its strands, he had found that the tumor had been lying quite free, except for a few threadlike adhesions, within a capsule, and that the nerve had traversed this capsule from end to end, in five separate bundles. It had

therefore been possible to enucleate the tumor and replace the nerve strands without the slightest injury to the latter. The tumor was a myxofibroma. The encapsulation of the tumor, and, at the same time, the confinement of the nerve bundles to the capsule had been novel and of importance to bear in mind in further operations upon such growths.

(To be continued.)

Book Notices.

BOOKS, ETC., RECEIVED.

Diseases of the Chest, Throat, and Nasal Cavities, including Physical Diagnosis and Diseases of the Lungs, Heart, and Aorta, Laryngology and Diseases of the Pharynx, Larynx, Nose, Thyroid Gland, and Œsophagus. By E. Fletcher Ingals, A. M., M. D., Professor of Laryngology and Practice of Medicine, Rush Medical College, etc. Third Edition, revised. With Two Hundred and Forty Illustrations. New York: William Wood & Co., 1894. Pp. xxvii-3 to 686. [Price, \$5.]

A Dictionary of Medicine, including General Pathology, General Therapeutics, Hygiene, and the Diseases of Women and Children. By Various Writers. Edited by Richard Quain, Bart., M. D. Lond., LL. D. Ed. ? F. R. S., President of the General Council of Medical Education, etc., assisted by Frederick Thomas Roberts, M. D. Lond., B. Sc., Fellow of the Royal College of Physicians, etc., and J. Mitchell Bruce, M. A. Abdn., M. D. Lond., Fellow of the Royal College of Physicians, etc., with an Appendix by Samuel Treat Armstrong, M. D., Ph. D., Visiting Physician to the Harlem Hospital, etc. New Edition, revised throughout and enlarged. Vol. I, Abdomen—Lysis. Pp. xxiv-1261. Vol. II, Macrocheilia—Zyme. Pp. vii-1305. New York: D. Appleton & Co., 1894.

Text-Book of Hygiene: A Comprehensive Treatise on the Principles and Practice of Preventive Medicine from an American Standpoint. By George H. Rohé, M. D., Professor of Therapeutics, Hygiene, and Mental Diseases in the College of Physicians and Surgeons, Baltimore, etc. Third Edition. Thoroughly revised and largely rewritten, with Many Illustrations and Valuable Tables. Philadelphia: The F. A. Davis Company, 1894. Pp. 553. [Price, \$3.]

A Clinical Manual of Diseases of the Eye, including a Sketch of its Anatomy. By D. B. St. John Roosa, M. D., LL. D., Professor of Diseases of the Eye and Ear in the New York Postgraduate Medical School and Hospital, etc. Illustrated by One Hundred and Seventy-eight Engravings and Two Chromo-lithographic Plates. New York: William Wood & Co., 1894. Pp. xx-3 to 621.

On Chorea and Choreiform Affections. By William Osler, M. D., Fellow of the Royal College of Physicians, London, etc. Philadelphia: P. Blakiston, Son, & Co., 1894. Pp. x-125. [Price, \$2.]

A Synopsis of the Practice of Medicine. By William Blair Stewart, A. M., M. D., Lecturer on Therapeutics, etc. New York: E. B. Treat, 1894. Pp. 5 to 433. [Price, \$2.75.]

A Manual of Modern Surgery; General and Operative. By James Chalmers DaCosta, M. D., Demonstrator of Surgery, Jefferson Medical College, Philadelphia. With One Hundred and Eighty-eight Illustrations in the Text and Thirteen Full-page Plates in Colors and Tints, aggregating Two Hundred and Seventy-six Separate Figures. Philadelphia: W. B. Saunders, 1894. Pp. 3 to 809. [Price, \$2.50.] [Saunders's *New Aid Series*.]

A Manual of the Practice of Medicine; prepared especially for Students. By A. A. Stevens, A. M., M. D., Lecturer on Terminology and Instructor in Physical Diagnosis in the University of Pennsylvania, etc. Third Edition, revised. Illustrated. Philadelphia: W. B. Saunders, 1894. Pp. xviii-17 to 501. [Price, \$2.50.]

Essentials of Diseases of the Skin, including the Syphiloder-mata. Arranged in the Form of Questions and Answers. Prepared especially for Students of Medicine. By Henry W. Stel-wagon, M. D., Ph. D., Clinical Professor of Dermatology in the Jefferson Medical College, etc. Third Edition, revised and enlarged. With Seventy-one Letterpress Cuts and Fifteen Half-tone Illustrations. Philadelphia: W. B. Saunders, 1894. Pp. viii-17 to 270. [Price, \$1.] [Saunders's *Question Compend*s, No. 11.]

Essentials of Chemistry and Toxicology. For the Use of Students in Medicine. By R. A. Witthaus, A. M., M. D., Pro-fessor of Chemistry and Physics in the University of New York. Twelfth Edition. New York: William Wood & Co., 1894. Pp. iv-314.

Dissections Illustrated. A Graphic Handbook for Students of Human Anatomy. By C. Gordon Brodie, F. R. C. S., Late Senior Demonstrator of Anatomy, Middlesex Hospital Medical School, etc. In Four Parts. Part III. The Head, Neck, and Thorax. With Twenty Colored Plates (five of which are full size and the rest two-thirds natural size) and Eight Diagrams. London and New York: Whittaker & Co., 1894. Pp. 75 to 114. [Price, \$2.50.]

A Review of the Relations between the State and the Medi-cal Profession in New York. By Frank Whitehill Hinkel, M. D. [Reprinted from the *Buffalo Medical and Surgical Journal*.]

A Retaining Splint for Excisions of the Hip Joint, with a Case. By Stewart LeRoy McCurdy, M. D., Dennison, Ohio. [Reprinted from the *Pittsburgh Medical Review*.]

Old and Neglected Deformities following Infantile Paraly-sis. By Stewart LeRoy McCurdy, M. D. [Reprinted from the *Columbus Medical Journal*.]

The Use of Traction in the Treatment of Joint Diseases. By Stewart LeRoy McCurdy, M. D. [Reprinted from the *Pitts-burgh Medical Review*.]

New Instruments. By Seth Scott Bishop, M. D. [Reprinted from the *Journal of the American Medical Association*.]

A New Apparatus for Administering Anæsthetics in Face and Mouth Operations. By Edmond Souchon, M. D. [Re-printed from the *Journal of the American Medical Association*.]

Lumbar Puncture for the Removal of the Cerebro-spinal Fluid. By William Browning, M. D. [Reprinted from the *Journal of Nervous and Mental Diseases*.]

Transactions of the Medical Society of the State of West Vir-ginia. Twenty-seventh Annual Session, held at Berkeley Springs, July 10th and 11th. Instituted April 10, 1867.

Miscellany.

Vertigo Due to Lead Poisoning.—In the *Archives cliniques de Bordeaux* for September there is an article on this subject by M. Émile Bitot in which he remarks that among the symptoms due to lead poisoning there is one of which writers have said very little, and that is vertigo. Tanquerel des Planches has not even mentioned it, Weill and Manouvriez speak of it inci-dentally, and Renaut is scarcely more explicit, although in one of his observations the principal characteristics of vertigo due

to lead poisoning are clearly indicated. This observation re-lates to a patient who had had symptoms of lead poisoning and vertigo which are described in the following terms: "From time to time he felt a weakness in all his limbs, and at the same time there was buzzing in the ears. He saw showers of snow or of fire; he almost completely lost consciousness, and it was neces-sary for him to lean on something in order to keep from fall-ing. This occurred from two to six times a day. There was no involuntary micturition. Finally the patient experienced a very intense pain in the head, which lasted for a long time." In his other observations M. Renaut generally contented him-self with stating that the patient had giddiness or was dazzled.

Having had occasion to observe several cases of vertigo among subjects attacked with lead poisoning, M. Bitot concludes that vertigo manifests itself nearly always in the following manner: In the beginning various troubles break out, such as cephalæa, heaviness of the head, and temporary burning at the side of the face. Immediately after there occur visual or au-ditory disorders, sometimes both. In particular, there are mist, darkness, bilateral movements of the eyeballs, and flutter-ing of the eyelids. There are buzzing and ringing in the ears accompanied with a hissing noise. Loss of equilibrium follows, and this sensation of instability requires the aid of a support, as the ground seems to fly from under the feet. Under some conditions it is the surroundings that seem to revolve rapidly. In one of M. Bitot's patients the symptoms consisted of a sen-sation of shock and sense of being pushed from behind forward, but without making the least progress in walking. M. Bitot designates the first symptoms under the name of *prævertiginous*, and the others under that of *vertiginous*. The first are pre-monitory and relate to the faculties, and the others to the equilibrium.

M. Bitot thinks it is wrong not to take into consideration in cases of vertigo the disorder of "locomotor co-ordination" (Jackson); "the consciousness of disordered equilibrium" (Stephen Mackenzie); "the feeling of instability in space with regard to surrounding objects" (Grainger Stewart). In reality, he says, the troubles in the beginning are important from two points of view. In the first place, they occasionally break out early enough to allow the patient to take precautions against serious accidents. In some cases they have been able to come down from a scaffolding or from a ladder, having been warned in time by the symptoms of the prævertiginous period. In the second place, among the vertiginous, the attack does not often reach the period when there is loss of equilibrium; in that case it is limited to derangements of the sight or hearing. Under these conditions, asks M. Bitot, should they not be considered as symptomatic equivalents of attacks of vertigo? Are there not to be found in this respect among true epileptics or among the subjects of Jacksonian epilepsy troubles, less pronounced with-out doubt, but very well marked, which, for the neuropatholo-gist, are the representatives of an attack? In the same man-ner the sensitivo-sensory or motor troubles are not symptomatic equivalents of true or partial epilepsy, except among those who are affected with one or the other of these nervous disorders. However, it must be borne in mind that the symptoms at the beginning may manifest themselves separately, and that from the moment they break out the patients have, under many cir-cumstances, time to take necessary precautions to prevent them-selves from falling. The integrity of the faculties remains per-fect even up to the time when vertigo sets in, for, although the subjects are obliged to suspend their work for a certain time, they are still able to converse with their companions and to hold their tools. The symptoms vary in duration; among those who have been poisoned for some time it is from two minutes to two minutes and a half, and among those recently

poisoned it persists only from thirty seconds to a minute at the longest. But the duration of the attacks has no connection at all with their frequency. There was not one of these patients who had not had at certain moments during the same day several attacks of vertigo, occurring sometimes in the morning, sometimes while walking, and especially while working. It seems, says M. Bitot, that accidents of this nature are, to a certain degree, independent of the toxic agent which gave rise to the original disorder; for, whether the patients continue their work or whether they give up their employment, they are not the less subject to attacks which may come on when they least expect them, aside from any appreciable cause.

These various peculiarities, says M. Bitot, do not enable us to distinguish absolutely between vertigo due to lead poisoning and other forms of the disease; therefore it is necessary to resort to other information in order to ascertain its nature. In some cases vertigo does not show itself as a premonitory symptom in the first crisis of acute intoxication. In M. Bitot's cases colic showed itself first in all of them except in one where there had been torpor followed by paralysis of the forearm. It is later in the course of the disease that vertigo becomes established, and this fact is an essential point in the ætiological diagnosis, and enables us to establish the following rule: Whenever a patient does not present symptoms of lead poisoning, such as colic or well-marked paralysis, this vertigo should be considered as dependent upon another cause. This is equivalent to saying that, aside from organic lesions, in cases combining lead poisoning and epilepsy, alcoholism, hysteria, neurasthenia, etc.—all affections that are capable of provoking a vertiginous condition—the vertigo can not be said to be due to lead poisoning unless the patient has previously presented symptoms of such poisoning.

Nephritis following Frictions with Naphthol.—In the *Revue internationale de médecine et de chirurgie pratiques* for October 25th there is an abstract of an article on this subject by M. Baatz which appeared in the *Centralblatt für innere Medizin*. The author relates two cases of nephritis following naphthol frictions for the itch. In the first case, that of a boy nine years old, the nephritis, which was not very pronounced, manifested itself in œdema of the legs, the feet, and the scrotum, accompanied with slight albuminuria. Recovery followed very quickly under the influence of a proper diet and baths. In the second case, that of a boy six years old, anasarca and symptoms of broncho-pneumonia were observed when he entered the hospital. The urine, which was brownish in color, contained albumin, hyaline casts, and red blood-corpuscles. Notwithstanding the treatment, which was carefully applied as soon as the symptoms appeared, the situation became aggravated and the child died four days after his entrance into the hospital. At the autopsy extensive broncho pneumonia of the left base and parenchymatous nephritis were found. The author thinks that in both cases nephritis had been provoked by the naphthol frictions. He recalls the fact that similar cases have been observed before by other authors. Kaposi has published an account of a boy who, after friction with naphthol for prurigo, was taken with ischuria, with bloody urine, vomiting, loss of consciousness, and eclampsia which persisted for several days. The child recovered. Lewier has related the case of a man who, after fifteen days of naphthol frictions, was taken with acute nephritis with albuminuria. Finally, Frohmüller has observed three cases of naphthol poisoning where the principal symptoms were acute nephritis and attacks of mania.

Mrs. Maybrick's Case.—The *Liverpool Review* for October 24, 1894, publishes the following letter from a "Barrister":

"SIR: I had hoped that some member of the medical profes-

sion in Liverpool would have taken up the question of the cause of Mr. Maybrick's death considered in relation to the new evidence; but as no one has done so the opinion of a barrister who has studied the medical evidence given at the trial may be found worthy of a place in your columns.

"The doctors who were examined on the trial on the question of arsenical poisoning were divided. Dr. Carter, Dr. Stevenson, and Dr. Humphreys were in favor of arsenical poisoning, the last-named being somewhat undecided. Professor Paul and Dr. Barron considered the cause of death doubtful. Drs. Tidy and McNamara were decidedly against arsenical poisoning. On the principle that the prisoner is entitled to the benefit of every reasonable doubt that arises, I may point out that an acquittal would not have prevented a prosecution for attempt to murder.

"But the jury decided in favor of the Crown physicians, and the judge seems so far to have concurred with them. The question therefore arises, How does the new evidence affect the question at issue between the doctors?

"The first thing, then, to be noted is that neither Dr. Stevenson nor Dr. Carter would have given a positive opinion as to the cause of death, but for finding arsenic in the body. Dr. Stevenson put this in the strongest and clearest way—'the diagnostic thing,' he said, 'was finding the arsenic.' He and his colleagues appeared to have reasoned thus: This man died of gastritis or gastro-enteritis. That is a disease caused by receiving some irritant into the stomach. I open the body to discover what irritant, and I find arsenic and arsenic only. The symptoms no doubt are not the usual ones in arsenical poisoning, but the symptoms of arsenical poisoning differ very much from one case to another. Those observed in this case are certainly not inconsistent with arsenical poisoning; and besides finding arsenic in the body we find it in the remains of some of the food and medicine which he took, and it appears that there was a large stock of it in the house. What conclusion can we draw except that the man died of arsenical poisoning? If it be said that the amount found is not sufficient to explain his death, there are many instances in which nearly the whole of a fatal dose was eliminated from the body before death; and some persons can be killed with a much smaller quantity of arsenic than others.

"Now, it is evident that the whole of this reasoning falls to the ground if it can be proved that Mr. Maybrick was a confirmed arsenic-eater, who used to take arsenic in sufficient quantities to account for what was found in the body, whatever the cause of his death may be; that it was his practice to take it in his food or in his drink rather than separately, and that the large stock of arsenic found in the house was introduced by himself. But all this is now placed beyond doubt by the evidence of Mr. Blake, Mr. Bawcroft, and Captain Fleming.

"The evidence of the Crown physicians thus loses the basis on which it mainly rested; and there are various other indications that Drs. Tidy and McNamara had hit upon the truth, while Drs. Stevenson, Carter, and Humphreys were misled in their diagnosis by finding in the body an amount of arsenic not exceeding what would have been found if Mr. Maybrick had been killed by an accident a month previously. One of these is that the attendant physicians never suspected arsenic until Mrs. Maybrick was charged with administering it; and this though Mrs. Maybrick had twice mentioned to Dr. Humphreys the white powders which her husband was taking as the probable cause of his illness. Nay, Dr. Humphreys actually administered arsenic himself, and was of opinion that the results were beneficial; Mrs. Maybrick discontinued the administration without orders, because her husband complained that it burned his throat. And even after Michael Maybrick's accusation, the

doctors do not seem to have definitely adopted the theory of arsenical poisoning until Dr. Carter detected arsenic in a bottle of Valentine's meat juice, of which Mr. Maybrick had not partaken. Finding it there was, of course, a very suspicious circumstance; but my object is to call attention to the fact that the attendant doctors did not form their judgments on purely medical grounds. And when they arrived at the conclusion that the cause of death was arsenical poisoning, they seem to have concluded that there was much more arsenic in the body than there really was.

"Accordingly the portions of the body and the contents which they removed at the post-mortem examination, with the skilled assistance of Dr. Barron, proved insufficient to establish the case. There were traces of arsenic in the portions of the body—not in the contents—but nothing that could be weighed. It was necessary to resort to exhumation in order to obtain enough of the body to yield one tenth of a grain of white arsenic on analysis—the smallest fatal dose mentioned in the books being two grains. The smallness of this quantity appears to have suggested the idea of slow poisoning, and the doctors, as well as Mr. Michael Maybrick, were at first willing to accept a date for the commencement of the poisoning process, at which it was afterward proved that Mr. Maybrick had a large quantity of arsenic in his possession, while his wife had none. The theory of slow poisoning was afterward, at least partially, abandoned. Dr. Carter held that a fatal dose had been administered on the 3d of May—the day on which Mr. Maybrick forgot to take to his office the luncheon which his wife had prepared for him—which dose was in great part eliminated from the body before death. Dr. Carter seems to me to have overestimated what remained. But the evidence went to negative any rapid elimination. Dr. Humphreys examined the excreta six days after the supposed fatal dose, and found no arsenic. The bedclothes and bedding, including a flannel shirt which Mr. Maybrick ceased to wear some days before his death, were examined and no arsenic found. Arsenic got rid of by vomiting would hardly have caused death, especially as the patient lived for some days after the violent vomiting had ceased. The diarrhœa was never violent. And Dr. Carter based his theory of a fatal dose on the 3d upon the violent vomiting which commenced on that night, but which Dr. Humphreys attributed to morphine administered by himself to relieve the pain.

"Finally, the Crown doctors in their evidence plainly thought they were dealing with a man who might be killed by two grains of white arsenic, whereas, as the evidence now stands, it seems probable that four grains would have proved insufficient to cause death.

"Another ground for preferring the theory of Drs. Tidy and McNamara to that of Drs. Carter and Stevenson is afforded by the conduct of Mr. Maybrick himself. We now know that he was a confirmed arsenic-eater for years, and must therefore have been aware of its effect on his system, which it seems are different on different persons. He regarded his illness as mysterious, and said that the doctors did not understand it. He had a large supply of arsenic in the house within his wife's reach, and he was jealous of his wife and distrusted her. How was it that the idea of arsenical poisoning never occurred to him? I know, indeed, that such expressions as 'Don't give the wrong medicine again,' and 'Oh, Bunny, how could you do it,' have been relied on by some persons as charging his wife with poisoning him; but when did he mention or even hint at arsenic? Indeed, it seems pretty certain that he ascribed the early part of his illness, not to arsenic, but strychnine, of which he thought he had taken an overdose. Had arsenic been found in a tonic bottle, of which the chief ingredient was strychnine, or *nux vomica*, it might be urged that this misled him into as-

cribing to strychnine what was really due to arsenic. But the arsenic was found in a totally different bottle—an aperient mixture which contained neither strychnine nor *nux vomica*. Those who ascribe the early part of Mr. Maybrick's illness to the arsenic in the aperient medicine must therefore contend that he made a mistake as to which bottle was speedily followed by symptoms of illness.

If, indeed, there were direct or even strong circumstantial evidence that Mrs. Maybrick administered arsenic to her husband, the matter would stand on a somewhat different footing. Unless the arsenic was administered at his request after he became unable to get it for himself, we should know that the self-administered arsenic had been supplemented by arsenic administered by his wife, and the presumption would be that between the two he got too much of it. But the evidence of administration by Mrs. Maybrick (at least at this time) is of the flimsiest possible character. She had access to the arsenic (doubtful) and access to the things in which it was found, and she had a motive for desiring his death. The real reason for supposing that she gave him arsenic was that *it was assumed that he did not administer it to himself*; and the chief reason for supposing that he did not administer it to himself was that *it was assumed that it killed him*. If it is clear that he did administer arsenic to himself, and highly probable that he did not die of arsenical poisoning, there is no evidence of administration by Mrs. Maybrick worth a straw. The charge of attempt to murder, indeed, stands or falls with the charge of murder.

"My conclusion is that James Maybrick did not die of arsenical poisoning, and that his wife was convicted of a crime that never was committed by any person."

The Grateful Patient.—The November number of the *Montreal Medical Journal* says that it has been making a collection of the opinions expressed in the newspapers regarding doctors, and that it is a most unflattering collection, but that the following extract from the *Christian Herald* is in such direct opposition to the usual run of such articles that it hastens to present it to its readers, so they may not be altogether discouraged by the jokes of an unfeeling and unsympathetic populace. The article in question is headed *The Old Country Doctor*, and was probably written by some one during the stage of gratitude which is usually among the sequelæ of a severe illness, and is followed, except in rare cases, by a condition of apathy toward, if not of absolute dislike of, the doctor. Be that as it may, the extract is as follows, and of its justice we leave the reader to judge:

"Our country physicians have so many hardships, so many interruptions, so many annoyances, I am glad they have so many encouragements. All doors open to them. They are welcome to mansion and to cot. Little children shout when they see them come down the road, and the aged, recognizing the step, look up and say, 'Doctor, is that you?' They stand between our families and the grave, fighting back the troops of disorder that come up from their encampment by the cold river. No one hears such thanks as the doctor hears. They are eyes to the blind, they are feet to the lame, their path is strewn with the benedictions of those whom they have befriended. One day there was a dreadful foreboding in our house. All hope was gone. The doctor came four times that day. The children put away their toys and all walked on tip-toe, and at the least sound said 'Hush!' How loudly the clock did tick, and how the banister creaked though we tried to keep it still! That night the doctor stayed all night. He concentrated all his skill upon the sufferer. At last the restlessness of the sufferer subsided in a calm, sweet slumber, and the doctor looked up and smiled: 'The crisis is passed.' When propped up with pillows, in the

easy chair, she sat, and the south wind tried to blow a rose leaf into the faded cheeks, and the children brought flowers—the one a red clover top, the other a violet from the lawn—to the lap of the convalescent, and Bertba stood on a high chair with a brush smoothing her mother's hair, and we were told in a day or two she might ride out, joy came back to our house.

"And as we helped the old country doctor into his gig, we noticed not that the step was broken, or the horse stiff in the knees, and we all realized for the first time in our life what doctors were worth. Encourage them. They deserve every kindness at our hands."

Advice to Physicians.—The following advice, under the head of "How to Succeed," in the November number of the *Woman's Medical Journal* is quite as applicable to male as it is to female physicians, for whom it was intended:

"Various letters come to us asking methods of establishing one's self in practice. How to begin is the very pertinent question of young women in the profession who are standing, diploma in hand, at the door of their professional life. The question of location is usually decided by many outside influences, but if everything else is equal it is wise to go where there are other women practicing successfully. They have educated and familiarized the community with women as physicians, and this is a long step gained. A growing town, in a growing part of it, with an office fully equipped and with it a businesslike appearance, will do much toward declaring your intentions to the community. Having done this, call on your brother and sister practitioners, and after due length of time join your local medical society and attend the meetings regularly. This is a point which is frequently overlooked and 'pity 'tis, 'tis true.' Go to as many meetings as you can; they serve to keep you in touch with the best fellowship of the day; they inspire a healthful rivalry and a spirit of emulation that will augur well for you in the present and future. Whenever you are invited to read a paper, prepare it from your own experience, so far as possible citing the most approved authorities in support of your position. And, having taken a position and being convinced that it is tenable, hold to it until it is demonstrated fallible.

"People with opinions are always respected. Whether we agree with them or not, it is the physician who writes who makes his reputation, and it is reputation which brings success. I do not mean those who compile from others' work, but I mean those who, in the love of their fellow-men, set down that which they have found to be practicable and good for others to know, who have crystallized their thoughts into writing."

A Case of Hæmatophilia, with Death from Hæmorrhage following the Extraction of a Tooth.—The *Annals of Surgery* contains the following account of a case which came under the observation of Dr. H. Elliott Bates, of Poughkeepsie: The patient was a man twenty-five years of age, and had been delicate from childhood. He had suffered from several attacks of rheumatism, painful joints, and digestive disturbances. When a child, a trifling accident had resulted in prolonged and obstinate hæmorrhage. Twice the extraction of a tooth had nearly cost him his life, on account of the persistent bleeding which had been very difficult to check. After enduring a severe tooth-ache for several days the patient applied to a dentist for relief. Nitrous oxide gas was given, and the tooth, the second right lower molar, was extracted. Hæmorrhage followed, but diminished steadily after the cavity had been packed with cotton. This was at half-past five in the afternoon. The patient went home; went to bed, and, placing a small foot-tub at the side of the bed, repeatedly emptied his mouth as fast as it filled up with blood. Thus he passed the night. In the morning his condition was such that the family resolved to send for a physician.

When seen by the writer the patient was in a state of collapse from acute anæmia. His temperature was 69.8° F.; the pulse 150, thready and feeble; respiration 24, sighing and stertorous. There was great restlessness and mental anxiety; the face and lips were bloodless; there were cold perspiration, tinnitus aurium, and dimmed vision. A stream of arterial blood trickled from the mouth. Vomiting of bloody material occurred frequently, followed by attacks of retching which terminated in syncope. Examination revealed a cavity in the lower jaw, nearly an inch in depth, the tissues of the gum badly lacerated, and the blood welling up with every beat of the heart. The source of the hæmorrhage was evidently the inferior dental branch of the internal maxillary artery. A hypodermic injection of whisky with a fiftieth of a grain of strychnine sulphate was given. The cavity was cleared of some masses of cotton and packed firmly with a long strip of sublimated gauze wrung out in Monsel's solution. Thereupon the bleeding ceased, with the exception of a steady ooze from the tissues of the gum, which resisted all attempts to check it.

The restlessness, retching, feeble pulse, and irregular respiration improved greatly after an injection of morphine with atropine. Stimulation in the form of whisky and strychnine was administered when indicated, and the patient rallied slowly and imperfectly. The stomach and rectum were intolerant, and nourishment was time and again rejected. Transfusion was not feasible, but the writer determined to make use of a substitute for it which had given excellent results in a similar case. This consisted of throwing under the skin with the hypodermic syringe, at frequent intervals, several drachms of the standard saline solution. An immediate improvement followed. The pulse became fuller and more regular, and at nine o'clock in the evening the patient was resting easily. The pulse was 100; temperature, 100.5° F.; respiration, 18. The surface of the body was warm; the patient was conscious and spoke of feeling better. At 3.30 A. M. the patient sank suddenly, the bleeding from the gum increased, but prompt stimulation resulted in prompt reaction.

Stimulants, subcutaneous injections of saline solution, and nourishment, together with constant watchfulness, carried the patient along until 3.30 P. M., when Dr. Powell saw the case in consultation. His prognosis was unfavorable, and he agreed with the treatment given. He also informed the writer that the patient had been under his care for several months for anæmia and general debility, without manifesting much improvement after careful treatment. Between 5 and 6 P. M. the radial pulse could not be felt at the wrist, and the patient seemed to be *in articulo mortis*. Nitroglycerin, warmth, whisky, and strychnine were then used with a happy result.

Dr. Bates remained with the patient from 3.30 P. M. until 4 A. M., when he left the case in the hands of Dr. Powell until 10 A. M. The patient had for several hours retained nourishment; the attacks of retching had almost entirely ceased; the pulse was apparently stronger. At 9 P. M. the patient began to sink rapidly, and finally expired at 9.30 P. M., seventy-six hours after the extraction of the tooth.

The family history shows well-marked phthisical taint upon the maternal side, while the paternal is markedly neurotic. No history of other cases of hæmorrhage in either family could be obtained. The patient was the only child. He had his first hæmorrhage when a young boy, and those which followed were all of traumatic origin. The quantity of blood lost was enormous.

The writer has had two similar cases, neither of them fatal, in which bleeding, profuse and hard to check, had followed extraction of a molar tooth in one case, and the snipping of the frænum of the penis in the other.

Original Communications.

INTESTINAL ANASTOMOSIS,

WITH THE REPORT OF A CASE.*

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ETC.

By intestinal anastomosis is meant the restoration of the interrupted continuity of the intestinal canal. This may be effected in diverse ways, many of which have been discarded. In this paper only the modern procedures introduced by Dr. Robert Abbe, of New York, Professor H. W. Maunsell, of England, and Professor J. B. Murphy, of Chicago, will be considered. It will not be necessary to describe the gross technique of either, as this has been so thoroughly done by their originators; but an effort will be made to contrast the methods, and to call attention to some details in their technique of which little has so far been said, but which experience has shown to be of importance. In the medical and scientific world, as in the social world, we are apt to go to extremes, and when new methods are announced we hear for a time only of their good points, and as one brilliant result after another is reported at the meetings of societies and in the medical press, we allow ourselves to believe that procedures which formerly required much experience and technical skill, now, by means of these happy discoveries, can be as readily and safely performed by the surgical novice as by the surgeon of experience. Unhappily, we are too often kept in ignorance of the unsuccessful work of our brethren, and it is only by some disaster of our own that we are made aware of some error which might have been avoided had we known that a similar mishap had already befallen some colleague. To be warned of danger is to be able to avoid it. It is by a careful study of the causes of our occasional failures, as well as of our successes, that present defeat is turned into future victory.

It was soon after the disastrous ending of what might have been a brilliant result that I was invited to come before you at this time, and although it would have been more agreeable to record the successful termination of a case of unusual importance and interest, its narration and analysis may prove of greater instructive value.

On May 31, 1894, I was called to see M. L. C., a married woman, aged thirty-four years. Her menstruation began in her sixteenth year, and was of the regular type, without pain. She had had three miscarriages. Fifteen years ago she had an attack of peritonitis. She had been very costive, and had had attacks of colic from time to time. She had not been so well as usual during the week preceding the present illness, and for several days had had pain in the right side of her abdomen whenever she had taken a long breath. She had taken several doses of cathartic medicine the day previous and again on the morning of the 31st, but without the desired result. About half an hour

before I reached her, and shortly after she had taken her lunch, she was seized with violent colicky pains in the lower abdomen. I found her in collapse, her bodily temperature being 95.5 and her pulse 46. Her abdomen was rigid and the pain was violent and in short paroxysms, and was increased by pressure in the right inguinal region. She was somewhat nauseated. It was supposed to be a case of "appendicitis" with perforation, and her removal to a hospital for the purpose of having a laparotomy performed was advised, but was declined.

A hypodermic injection of a quarter of a grain of morphine with a fiftieth of a grain of nitroglycerin was administered at 4 P. M. At 8 P. M. the patient had ceased vomiting. Her pulse was 100 and her bodily temperature was 98.5°. Her pain had been mitigated. At 10 P. M. she was still comfortable, and her pain was entirely relieved. The diagnosis of appendicitis was considered doubtful. At 2 A. M. she vomited fecal matter, and had severe pain all over the abdomen. At 9 A. M. her pulse was 60, her temperature was 97°, her respirations were 24. Operative measures were once more urged and declined. An enema of eight ounces of a saturated solution of sulphate of magnesium with an ounce of glycerin was administered through a rectal tube. At 11 A. M. a large scybalous movement which completely filled the vessel occurred; the vomiting, however, continued at intervals all day. The pain was general and was no longer localized in the right inguinal region, as it was originally. Late in the afternoon she was persuaded to go to St. Elizabeth's Hospital. At 11 P. M. a consultation was held with Dr. Charles Phelps, her temperature, pulse, and respiration being 97°, 60, and 18 respectively. It was decided that the patient was suffering from intestinal obstruction; that her condition was not at the moment favorable for operative procedure; that she should be stimulated; and that if she responded the operation should be performed as soon as practicable. It was explained to her that the morphine and stimulants would relieve her pain and make her feel stronger, but that the necessity for operative interference would still exist. A quarter of a grain of morphine with a fortieth of a grain of strychnine was given at 11 P. M., and was repeated at 4 A. M. on June 2d. At 5 A. M. her temperature was 99°, her pulse was 100, and her respirations were 24. At 7 A. M., with the assistance of Dr. Charles Phelps and Dr. Parker Syms, the patient was anesthetized and her abdomen, which was much distended, was opened. As soon as the peritonæum was incised about two quarts of straw-colored serum escaped, and the small intestine protruded. The loops of the small intestine were much distended and almost black in color. They were drawn out, and a point a short distance from the cæcum was found to have been compressed by a mesenteric band which had been ruptured as the intestine was withdrawn. The gut showed the mark of pressure. At a point nine inches distant another tight mesenteric band was discovered, which constricted the intestine at that point. This was torn by the fingers. The intestinal circulation seemed to return slowly. At this point the mesentery as well as the intestine was ecchymotic and dark in color. All present were in doubt as to whether the gut could recover itself or not. Had there been only one or even two feet of this discolored intestine the patient would have been given the benefit of the doubt by its removal; but as its condition seemed the same up to the duodenum, all that could be done was to return the bowel to the cavity. Before this was done, however, it was deemed advisable to relieve the intestinal distention, and the gut was opened by a longitudinal incision, and the gas and fecal matter were allowed to escape. The wound was then closed by Lembert sutures, and before the gut was returned a moderate quantity of a strong solution of hydrogen dioxide was poured over that

* Read at the eleventh annual meeting of the New York State Medical Association, October 11, 1894.

portion of the intestine in which the opening had been made. Much heat was given off as this solution decomposed, and it roughened the peritoneal coat of the intestines before it could be washed off. The peritoneal cavity was filled with hot saline solution, and the wound closed without drainage.

The time occupied by the operation was forty-five minutes. It was fairly well borne. Stimulants were administered at 9, and again at 10 A. M. At 12 M. the patient's temperature was 98.5°, her pulse was 100, and her respirations were 24. She vomited once, and then but little. During the afternoon nutritive enemata were given. At 9 P. M. her temperature, pulse, and respirations were 100.5°, 100, and 24, respectively. The patient was free from pain and nausea; she urinated freely and slept during the afternoon.

June 3d.—At 4 A. M. by mistake the sister gave a cathartic. At 6 A. M. her temperature was 100°, her pulse was 100, her respirations were 24. At 8 A. M. she vomited a little. At 10 and 11 A. M., 12 M., and 1 P. M., powders containing each one tenth of a grain of calomel, with one grain of bicarbonate of sodium, were given. At 4 P. M. a large movement resulted. At 7 P. M. her temperature was 98.5°, her pulse was 80, her respirations 18. The patient retained nourishment, and slept much during the day and passed a comfortable night.

4th.—The patient had a large stool at 5.30 A. M. At 9 A. M. her temperature was 98.5°, her pulse was 80, and her respirations were 24. At 5 P. M. they were 99°, 72, and 18, respectively.

5th.—The patient had remained comfortable and her temperature was normal, and remained so till the 8th of June, when there was a slight rise. The abdominal wound was examined, and it looked a little red. The sutures were removed and were found to be clean.

On June 10th, the eighth day following the operation, the superficial part of the wound was opened, and an ounce or two of fetid pus escaped, which had a strong faecal odor. This superficial cavity was syringed out with the strong solution of hydrogen dioxide. On the 11th of June there was no faecal odor, and the discharge from the abscess was slight. Her temperature became normal again, and remained so till the 21st of June. She now sat up, but complained of pain on passing urine, of some backache, and of a yellowish discharge which escaped from her vagina. Her temperature now ranged from 99° to 102°, and her pulse from 92 to 102. This seemed to be satisfactorily accounted for by the patient's statement that she was subject to malarial chills, and that the time for her menstrual period was at hand. On the 23d she sat up, and complained that this caused pain in the uterine region. She now began to flow, and her temperature subsided. Her bowels moved daily. The sinus in the anterior wall remained patent, but discharged little pus. On the 26th another rise of temperature occurred, and from this time until July 7th it varied from 99° to 102°, and her pulse from 99 to 104. The flow having ceased, an examination *per vaginam* was made, and a large mass was discovered on the right side and behind the uterus. Pressure on the mass caused some blood and pus to flow into the vagina from the uterus, which was fixed and tender. A consultation was held, and an operation advised and consented to. It was performed on July 7th, thirty-five days after the first operation. Prior to the operation her temperature was 100°, her pulse was 98, and her respirations 20.

An incision was made on either side of the old cicatrix, and the sinus was cut out. The tissues were matted together. The peritonæum was opened with care, and the intestines were found adherent to the anterior abdominal wall. These adhesions were broken up and the wound enlarged with the scissors, the forefinger of the left hand being used as a director.

As this was done there came into view a knuckle of ileum which was divided transversely and symmetrically almost from one mesenteric border to the other. There was no faecal matter in this portion of the intestinal canal. Nine inches from the first solution of continuity a second was discovered, which resembled the first in every particular. The edges did not have the appearance of having been recently cut, and it did not seem possible that they had been cut accidentally in the course of the operation. The points of division corresponded to the points at which the ileum was found constricted by mesenteric bands at the primary operation. The patient being feeble, it was deemed wise to make the operation of as short duration as possible, and the bowels were anastomosed at both points by Murphy buttons. Unfortunately, only one medium-sized button was available, and the second point being near the cæcum was joined by one of the larger size. Its segments were introduced with some difficulty on account of its size. A strong solution of hydrogen dioxide was poured over the intestines at this point. Its decomposition was effected with much rise of temperature, and saline solution was poured over them promptly, but not soon enough to prevent roughening of the serous membrane. The weaker solution does not do this. Many of the intestinal adhesions were now broken up, the bowels were returned to the peritoneal cavity, and a search was made for the abscess. One was found in the right broad ligament involving the right tube. This mass was removed, but in doing so the sac was broken, and much pus escaped into the pelvic cavity. This was sponged out, and hydrogen dioxide was poured into the cavity; as the patient's strength was failing, some adhesions posterior to the uterus were left undisturbed. The cavity was irrigated with hot sterilized saline solution and the abdominal wound was closed. The duration of the operation was two hours. The amount of ether used was six ounces. Stimulants were administered, and the patient rallied. At 4 P. M. her temperature was 101° and her pulse was 120.

July 8th.—The patient passed a good night, nutritive enemata with stimulants being administered. She passed a fair amount of urine.

There was nothing of interest to record till the 9th of July, at 3 A. M., when the patient vomited faecal matter freely. Her temperature was 102°, her pulse was 120, and her respirations were 24. At 6 A. M. she complained of a sharp pain in her left lumbar region. At 11 A. M. her temperature had risen to 104°, her pulse was 120, and her respirations were 20. The vomiting continued at intervals during the day. A consultation was held, but it was decided not to interfere further, and the patient died at 3 A. M., July 10th, twenty-four hours from the time faecal vomiting had begun, and sixty-four hours after the operation.

10th. Necropsy.—The abdominal wound had united primarily. On opening the peritoneal cavity it was found to contain about three ounces of blood-stained fluid. The bowels were somewhat distended, and on the left side, just below the site of pain complained of by the patient, they were adherent to the anterior abdominal wall. Breaking these up, a small perforation was found posterior to the larger button. The lines of union over both buttons were perfect. The intestine here was flexed and adherent, giving rise to the fatal obstruction. At the site of the abscess partially excised at the previous operation there was no sign of infection, but an abscess was found posterior to the uterus under the adhesions that were not broken up previously.

The points of interest in this case are:

1. The severity and sudden onset of the symptoms.
2. The prompt reaction brought about by the use of morphine and strychnine as stimulants.

3. The early onset of faecal vomiting—eleven hours after the beginning of the attack.

4. The large alvine dejection following the administration of the enema, other symptoms of obstruction meanwhile continuing.

5. The large amount of fluid in the abdominal cavity found at the primary operation.

6. The strangulation of the intestine by two mesenteric bands a few inches apart.

7. The recovery of the intestines, except at the points of constriction, after thirty-six hours of strangulation and their having become dark and dull in color, the ecchymosis extending into the mesentery.

8. The faecal movement thirty-six hours after the primary operation, followed by the immediate fall of the patient's temperature to normal and remaining so for five days.

9. The abscess of the anterior wall, giving when opened a faecal odor, and none thereafter.

10. The possible independent pyosalpinx (?), the pelvic abscess having no communication with the abscess and sinus in the anterior wall.

11. The adherence of the intestines to the anterior wall, and the mass of adhesions found at the second operation.

12. The bowels symmetrically divided at the former points of constriction.

13. The double anastomosis by Murphy buttons.

14. The perforation posterior to the larger button and the complete closure of this by adhesions.

15. The flexure of the intestine, causing fatal obstruction.

16. The site of the pelvic abscess, which was partly removed at the second operation and disinfected with hydrogen dioxide, and had remained clean sixty hours after the completion of the operation.

Remarks.—In the early diagnosis the writer was misled by the fact that at first no history of previous peritonitis or injury could be drawn out—the attack had occurred fifteen years previously and the patient had forgotten it; also by the absence of vomiting, which is, as a rule, a constant, continuous, and early symptom; also by the presence of right lumbar tenderness and pain, which is usually absent. The mode of onset of this case, with the history of previous peritonitis, of chronic costiveness, of recurrent attacks of colic from time to time, and the sudden seizure after the use of powerful cathartics, was the story of strangulation by bands, which causes, according to Treves, twenty five per cent. of all cases of intestinal obstruction. Opium and strychnine are indeed valuable agents with which to overcome shock, as they proved to be in this case; but care must be taken in their use. The diagnosis should first be fairly considered, and, if clear, the necessity for operative measures should be explained to the patient, and the statement made that the medicine employed will have no curative effect, but will only relieve the symptoms and put the patient in a proper condition to bear what is to follow. Till this is done, the use of opium is dangerous to patient and physician alike. The character of the pain is

important. At first it was intermittent, which meant that the obstruction was complete; but this was indicated later when it became continuous and faecal vomiting occurred. This seldom appears before the fifth day. The large stool following the enema while the ileum was tightly compressed by bands shows how unreliable is this symptom. In this case only the patient was misled, as the other symptoms continued with unabated severity. Had morphine been administered during this time and the patient made comfortable, her consent to removal to the hospital with a view to operative measures would never have been given. Cruel as it seemed to allow the patient to bear severe pain for hours, it was at that time the best service that could be rendered her.

The large amount of fluid found in the abdominal cavity at the first operation, and the absence of intestinal agglutination with general peritonitis, would tend to confirm the writer's theory that it may be possible to limit or prevent the formation of adhesions by filling and closing the abdominal cavity with the sterilized saline solution—0.6 per cent. The adherence of the intestine to the anterior wall, and the mass of adhesions found at the second operation, notwithstanding the use of the saline solution to prevent them, is of interest. The writer's theory is that they formed after the solution was absorbed, on account of the perforations for the purpose of protection.

In August of this year, at the Carnegie Laboratory, with the assistance of Dr. Titterton, twenty experimental operations on dogs were undertaken, and it was found that twelve ounces of the saline solution could be safely introduced into the peritoneal cavity of a dog weighing from fifteen to twenty pounds; that it was absorbed in from twenty to thirty hours; and that in no case where it was used were there intestinal adhesions, notwithstanding the fact that some portions of the intestines were in most cases drawn out and sponged with a 1-to-1,000 bichloride solution, or a 1-to-20 carbolic-acid solution. In one case they were scraped and the serous coat incised at several points, except in those cases where there was some intestinal complication, such as a failure of a suture, or perforation from one cause or another.

It is not the writer's purpose in this paper to attempt to detract from the brilliancy of Professor J. B. Murphy's invention, or to doubt its utility, but to show, if possible, that it should be used by experienced surgeons with a proper understanding of its dangers, which are numerous. It is, in the writer's opinion, somewhat unsurgical: 1. Because it places in the intestines a foreign body which is occasionally therein retained, and renders necessary a secondary laparotomy for its removal. This happened in an unreported case treated by a well-known surgeon of this city. 2. Because it makes the patient dependent on the craft of the cutler rather than upon the skill of the surgeon, the spring of the button being made at times too strong, and at other times too weak. In an experimental anastomosis in a dog, the spring was so powerful as to cut through all the coats of the bowel and to project into the peritoneal cavity, causing death in fifteen hours. In another case the animal died within forty hours from the same cause. There

do not seem to be indications by which it can be known when the instrument is properly constructed. 3. Because there is the trouble of being obliged to have a button or buttons of the proper size, as, in the case reported, a perforation following the use of a button a little too large for the portion of intestine united. This accident also happened in the practice of the surgeon previously alluded to. 4. Because there is danger in the weight of the button, which may act as an anchor to hold the bowel in a flexed position, thus causing obstruction, as happened in the case just narrated. 5. Because there is some danger of the lumen of the button becoming plugged with hard faecal matter, causing thereby a fatal obstruction, as happened in an unreported case of the surgeon already alluded to. 6. Because there is danger in the holes placed at the ends of the buttons for the purpose of drainage causing a perforation, the intestine being pressed into them and against their edges if care be not used in pressing the segments together. To prevent this accident, a sponge should be placed behind each segment of the button before these segments are pressed together. This accident happened in the course of the experimental work previously alluded to, all the coats from the mucous to the serous, but not including it, being divided.

Experiment proved that there was no practical difficulty in the way, at least in the dog, of uniting the intestine by means of the button at two points nine or ten inches apart if need be, as in this case; or in case of a gunshot wound, or a stab wound, as the following report shows:

On August 24th, a dog weighing twenty-five pounds was anesthetized, his peritoneal cavity was opened, and a portion of the ileum was drawn out and cut across, and the ends were united by means of a Murphy button. A second point, nine or ten inches distant, was also incised and joined in the same manner. No chemical solutions were used except the sterilized saline solution with which the intestines were washed, and an ounce of hydrogen dioxide. No fluid was introduced into the peritoneal cavity. The external wound was closed. On August 25th the dog seemed well and bright, showed no evidence of pain, and defecated. On August 27th the dog continued well, defecated, and took milk and bread in large quantities. On August 31st the dog appeared to be in good health. Both buttons had passed during the night. The animal continued well up to October 6th, when he was killed, and the peritoneal cavity was opened. The omentum was found slightly adherent to the line of incision; there were no intestinal adhesions except at the points of anastomosis; the lines of union were barely visible, and there seemed to be no contraction. Forty-three days had elapsed since the operation had been performed.

The method of intestinal anastomosis devised and described by Professor H. Widenham Maunsell in the March, 1892, number of *The American Journal of the Medical Sciences*, if not so alluring as that of Professor Murphy, has, to the writer's mind, many advantages over the latter. If the union can not be as quickly effected, it requires for its performance no mechanical device—only a few needles, silk or horsehair for sutures, and experience and general surgical skill. That the method is not as frequently employed as it deserves to be is due to its having been introduced

about the same time as the Murphy method, which, from its apparent safety, ease, and lack of special skill required for its accomplishment, has temporarily captivated the medical mind. In time it will be determined which is the better method. The writer believes that in the future the Maunsell method will at least be more frequently employed, if it does not eventually displace the other.

So far the writer can find records of only three operations by the Maunsell method—one was reported by Professor Maunsell in the London *Lancet* of February 13, 1892. The operation was performed in December of 1886, and was for intestinal obstruction due to a carcinoma. Four inches of the ileum were excised, and the ends united according to Maunsell's method. The time occupied was thirty minutes. The patient died on the sixth day, from exhaustion. The necropsy revealed union of segments of the bowel. There was no sign of leakage.

Dr. Frank Hartley, of this city, reported a case of double intussusception and carcinoma, with excision of both; end-to-end union by Maunsell's method; time of operation, thirty minutes. The patient made a good recovery, her bodily temperature not reaching 100° F. (*New York Medical Journal*, vol. lvi, pp. 302 and 464). Up to the present time (1894) the patient has remained well. He remarks: "To me it seems to be the method for enterectomy. The rapidity with which it can be done, and the easy command one has over the hæmorrhage, seem to be the two great points in its favor."

On September 12, 1893, the writer excised six inches of the ileum for contusion and perforation, and joined the ends according to Maunsell's method (*New York Medical Journal*, January 20, 1894). The patient made a good recovery, and had remained well and without bowel trouble when last heard from in July of this year, ten months after the operation. The urgency of this case was great. The patient was in a country farmhouse. The operation could not safely have been delayed one hour longer than it was; consequently there was no time to procure mechanical devices from the city. A few instruments, a paper of ordinary sewing needles—milliners' No. 6—and some iron-dyed silk were easily procured, and the operation was promptly performed, and the patient's life was saved.

In this operation there are also some points in which danger lurks, but which with a little practice are easily overcome. 1. Care must be used in approximating the mesenteric border, otherwise sloughing may occur at this point. 2. The sutures should be interrupted, and must not be placed too near the edge of the intestine; they should be placed a quarter of an inch from it at least. 3. The sutures should not be drawn too tightly. 4. Care must be exercised in reducing the invagination after the sutures have been placed not to use much force, or the sutures may cut out. 5. Care must also be exercised in closing the longitudinal incision not to turn in too much of the edges or it may cause a contraction. The difficulties to be overcome are those which skill and experience can control. Dr. B. Merrill Ricketts, of Cincinnati, in reporting a case of anastomosis by the Murphy button (*The Annals of Surgery*, vol. xix, p. 473), said: "I am satisfied that the Murphy button

was the most appropriate in this case, although I am thoroughly convinced that the Maunsell operation is the one to be used in the majority of cases."

In conclusion, the writer can but believe that the best surgery is that which requires the fewest mechanical devices and the fewest special instruments for the accomplishment of its purpose, other things being equal; and the writer's own experience would at this time lead him to believe that Dr. Ricketts is right in saying that the Maunsell operation is the one to use in the majority of cases, and that as time passes it will be better appreciated, as it deserves to be. At present there have been only three cases placed on record, and, as far as the anastomosis was concerned, all were successful. They are too few to build on, but they point the way to a thoroughly surgical, quick, and

easy method of intestinal anastomosis, adaptable to any portion of the canal—a method which is perfectly safe in the hands of those who have the proper experience and technical skill. If for any reason a lateral anastomosis is desired, what can be better than the method devised and advocated by Dr. Robert Abbe in the *Medical Record*, April 2, 1892? This, like the Maunsell method, requires no mechanical aid for its execution, and both are exquisite surgical devices.

APPENDIX.

Through the courtesy of Professor J. B. Murphy, which is hereby acknowledged, and of some other gentlemen, the writer has been able to collect twenty-three cases of intestinal resection in which end-to-end anastomosis has been

RESECTION, END-TO-END ANASTOMOSIS.

No.	Date.	Publication.	Operator.	Diagnosis.	Operation.	Method.	Position.	RESULT.		Cause of death.	Remarks.
								R.	D.		
1	June 13, 1894.	Not published.	Themones.	Strangulated hernia.	Resection, end to end.	Murphy button.	E. to e.	1	.....	.....	Button passed 18th day.
2	June 21, 1894.	" "	Cochems, F. W.	Strangulated hernia.	"	"	"	1	.....	.....	Resection of 26 inches; button passed 180 hours after operation.
3	June 15, 1894.	" "	McCallum, J. L.	Strangulation of ileum.	"	"	"	1	.....	.....	Twelve inches of ileum resected.
4	April 2, 1894.	" "	Dr. Newton.	Neoplasm of mesentery.	"	"	"	1	.....	.....	Button passed 14th day. (Small child.)
5	April 7, 1894.	<i>N. Y. Med. Jour.</i> , September, 1894.	Dr. Dennis.	Strangulated hernia.	Resection of ileum.	"	"	1	.....	.....	Button passed 22 days after operation; wound suppurated; fecal fistula closed on 27th day.
6	May 12, 1894.	Not published.	Meyer, Willy.	Intussusception; myxosarcoma.	Resection of ileum, 3 inches	"	"	1	.....	.....	Button passed 11 days after operation; perfect recovery.
7	June 16, 1894.	" "	Meyer, Willy.	Intussusception; intestinal obstruction, sarcoma.	Resection of ascending colon, 12 inches.	"	"	1	.....	.....	Button passed 11 days after operation; discharged July 24, 1894; died of marasmus, Aug. 14, 1894. Autopsy, multiple sarcoma.
8	June 18, 1894.	<i>N. Y. Med. Jour.</i> , September, 1894.	D. Lillenthal.	Carcinoma of transverse colon.	Resection of transverse colon, 6 inches.	"	"	1	.....	.....	One and three-quarter inch (in diameter) button used; passed 18th day without pain.
9	Nov. 11, 1893.	(?)	Ricketts.	Carcinoma of ileum; obstruction.	Resection, end to end.	"	"	.....	1	Shock, 10 hrs.	Time for operation, 10 minutes.
10	May 11, 1894.	<i>Mathews's Med. Quar.</i> , July, 1894.	Outerbridge.	Carcinoma of transverse colon.	"	"	"	1	.....	.....	Time for operation, 1 hour and 45 minutes. Several inches of transverse colon resected.
11	June 23, 1894.	Not published.	Meyer, Willy.	Carcinoma of rectum.	Resection of rectum, 8 in.; Kraske, Rehn.	"	"	1	.....	.....	Death July 23d. Gangrene of lower end of sigmoid with fecal fistula above line of union, due to tension of meso-sigmoid. Button accomplished purpose admirably; voided on 11th day.
12	June 1, 1894.	" "	Cobb, J. O.	Syphilitic stricture.	Anastomosis around stricture.	"	"	1	.....	.....	Death, 14 days later, of pneumonia; autopsy; perfect approximation.
13	Feb. 27, 1894.	" "	Ferguson, A. H.	Cancer of cæcum.	Extirpation of cæcum; 14 in. of bowel.	"	E. to s.	1	.....	.....	Patient died 4 weeks later of diarrhœa; autopsy; perfect approximation; opening large as button; diphtheritic colitis.
14	June 17, 1894.	" "	Davis, T. A.	Penetrating wound of abdomen; laceration of intestine.	Resection, end to end.	"	E. to e.	.....	1	3 hours' shock.	Never rallied from shock or injury.
15	Aug. 31, 1894.	" "	Beck, Carl.	Carcinoma of cæcum.	Resection of cæcum.	"	L.	1	.....	.....	Ends of intestines sutured; lateral anastomosis with button No. 3.
16	June 4, 1894.	" "	Murphy, J. B.	Fæcal fistula.	Resection, end to end.	"	E. to e.	1	.....	.....	Removed 25 inches of small intestine; opening made by button in previous operation had dilated from 3 to 5 inches.
17	Jan. 28, 1894.	" "	Middleton, W. D.	Carcinoma of rectum.	Resection of upper part of rectum, 2½ in.	"	"	1	.....	.....	Completely cured; button passed on 12th day.
18	July 7, 1894.	" "	Wiggin, F. H.	.....	Double anastomosis.	"	"	.....	1	.....	Death, 60 hours after operation, from obstruction caused by a flexure in the intestines and adhesions at seat of operation, the buttons acting as anchors to hold the bowel in malposition; line of union at both places barely visible; pressure atrophy nearly complete; posterior to one button was a perforation which was closed by adhesions.
19	July 17, 1894.	" "	Hartley, F.	Intestinal obstruction of five days' standing; gut gangrenous.	Resection, end to end.	"	"	1	.....	.....	Button passed on 9th day; patient is well.
20	July 11, 1894.	" "	Abbe, R.	Resection of caput coli.	Ileo-colic.	"	"	.....	1	Fatal obstruction; hard fecal matter.	Fatal obstruction by hard fecal matter, which plugged the button, notwithstanding ileotomy.
21	April 25, 1894.	" "	Abbe, R.	Union of splenic flexure of colon and sigmoid flexure.	.....	"	S. to s.	1	.....	.....	Result good, but button never passed.
22	June 1, 1894.	" "	Abbe, R.	Cancerous growth; resection and recovery of button.	.....	"	E. to e.	.....	1	.....	Sloughing of bowel adjacent to the button, due, says the operator, I fear, to pressure of the metal. The button was sent to me by Dr. Murphy.
23	Aug. 18, 1894.	" "	Silver, H. M.	Strangulated femoral hernia; resection of 3 inches.	.....	"	"	1	.....	.....	Button passed on the 8th day. Sept 21st, patient in perfect health; no symptoms after operation.

GASTRO-ENTEROSTOMY.

No.	Date.	Publication.	Operator.	Diagnosis.	Operation.	Method.	Position.	RESULT.		Cause of death.	Remarks.
								R.	D.		
1	May 5, 1894.	<i>Med. Week.</i> Paris, vol. ii, No. 38.	Quenu.	Epithelioma of stomach.	Gastro-jejunos-tomy.	Murphy button.	L.	1	.....	.....	Time for operation, 1 hour and 55 minutes. Uneventful recovery; up in 18 days; great increase in weight.
2	April 19, 1894.	Not published.	Bressler (Baltimore).	Obstruction of pylorus.	Gastro-enteros-tomy.	"	"	1	.....	.....	Death 4 weeks later; exhaustion; button found at splenic flexure of colon retained by band of adhesion; no obstruction.
3	Aug. 13, 1894.	"	Mayo, W. J.	Carcinoma of pylorus.	"	"	"	1	.....	.....	Death 14 days after; broncho-pneumonia; autopsy; perfect union; button liberated; opening about twice as large as button.
4	Aug. 6, 1894.	"	Meyer, Willy.	Malignant stricture of pylorus.	"	"	"	1	.....	.....	Rapid recovery; discharged August 25, 1894.
5	Aug. 23, 1894.	"	Meyer, Willy.	Carcinoma of pylorus.	"	"	"	1	.....	.....	Patient still in hospital, doing well (September 6, 1894).
6	April 10, 1894.	<i>Buf. Med. and Surg. Jour.</i> , July, 1894.	Mynter, H.	Carcinoma of pylorus.	"	"	"	1	.....	.....	Vomiting ceased; patient left hospital in 3 weeks.
7	May, 1894.	<i>Ibid.</i>	Mynter, H.	Carcinoma of pylorus.	"	"	"	1	.....	Exhaustion, 12 hrs.	.....
8	1894.	<i>Ibid.</i>	Mynter, H.	Carcinoma of pylorus.	"	"	"	1	.....	.....	Smallest sized button used, which could not possibly grasp tissue and was never intended for that purpose. The wall of the stomach slipped out of its embrace and allowed contents to escape. A running suture is not necessary if proper size button is used.
9	July 21, 1893.	Not published.	Middleton, W. D.	Stricture of pylorus.	"	"	"	1	.....	.....	Uneventful convalescence; patient gained 42 pounds in year following operation.
10	July, 1894.	"	Middleton, W. D.	Carcinoma of pylorus.	"	"	"	1	.....	Exhaustion, 3d day.	Largest size button used; patient very weak and emaciated previous to operation, from constant vomiting. Post-mortem revealed circumscribed peritonitis about site of operation; stomach eroded by a great ulcer 3 inches in diameter; pancreas and other organs involved; approximation perfect.
11	Aug. 1, 1894.	"	Silver, H. M.	Carcinoma of pylorus.	"	"	"	1	.....	Exhaustion, 8th day.	Button was still in position; method of its separation well illustrated.

CHOLECYSTODUODENOSTOMY FOR CHOLELITHIASIS.

No.	Date.	Publication.	Operator.	Diagnosis.	Operation.	Method.	Position.	RESULT.		Cause of death.	Remarks.
								R.	D.		
1	April 17, 1894.	<i>Buf. Med. and Surg. Jour.</i> , July, 1894.	Mynter.	Cholelithiasis; enlarged gall bladder.	Cholecystduodenostomy.	Murphy button.	S. to s.	1	.....	.....	Rapid recovery; button passed 22d day; 126 gallstones.
2	March, 1894.	Not published.	Bradley, Peoria, Ill.	Obstruction of common duct.	"	"	"	1	.....	Exhaustion, 7th day.	Post mortem; profuse hæmorrhage from liver where it had been torn during operation in freeing adhesions; approximation perfect. Time for operation, 40 minutes.
3	May, 1894.	"	Bradley, Peoria, Ill.	Cholelithiasis; dilatation of gall bladder.	"	"	"	1	.....	.....	One hundred and fifty calculi; button passed 40 days after operation.
4	Oct. 16, 1893.	"	A. H. Ferguson.	Gallstones.	"	"	"	1	.....	.....	Excellent recovery.
5	Feb. 22, 1894.	"	A. H. Ferguson.	Gallstones.	"	"	"	1	.....	.....	"
6	Mar. 25, 1894.	"	A. H. Ferguson.	Gallstones.	"	"	"	1	.....	.....	"
7	May 16, 1894.	"	Clayton Parkhill.	Gallstones.	"	"	"	1	.....	.....	Button passed 22d day; convalescence uneventful.
8	July 16, 1894.	"	G. G. Burdick.	Cholelithiasis, obstructive.	"	"	"	1	.....	.....	Button passed 14th day; large calculus allowed to remain in choledochus.
9	Sept. 8, 1894.	"	Murphy, J. B.	Cholelithiasis; obstruction of cysticus.	"	"	"	1	.....	.....	Time for operation, 20 minutes. Difficulty experienced in pressing large calculus from cystic duct back into gall bladder; 6 calculi removed.
10	Aug. 17, 1894.	"	Middleton, W. D.	Cholelithiasis; obstruction of choledochus.	"	"	"	1	.....	.....	Gall bladder found contracted to size of hickory nut, stone half that size removed; obstruction due to fibroid degeneration along entire length of duct; smallest sized button used.
11	Sept. 15, 1894.	"	Murphy, J. B.	Cholelithiasis; obstruction of cystic duct.	"	"	"	1	.....	.....	Gallstone as large as filbert impacted in cystic duct; removed through gall bladder, which was much dilated, full of mucus, no bile. Time for making anastomosis and removing calculus, 6 minutes; time for making entire operation, 16 minutes.

CHOLECYSTENTEROSTOMY FOR MALIGNANT DISEASE.

No.	Date.	Publication.	Operator.	Diagnosis.	Operation.	Method.	Position.	RESULT.		Cause of death.	Remarks.
								R.	D.		
1	March, 1894.	<i>Buf. Med. and Surg. Jour.</i> , July, 1894.	Mynter, H.	Stenosis of common duct.	Cholecystduodenostomy.	Murphy button.	S. to s.	1	.....	Prostration.	No peritonitis; perfect adhesions; multiple carcinoma of pancreas and liver.
2	Feb. 2, 1894.	Not published.	King, Ernest W.	Carcinoma of pancreas.	"	"	"	1	.....	4th day.	No peritonitis; cholemic hæmorrhage from all mucous surfaces of the body.
3	Sept. 29, 1894.	"	Hartley, F.	Stenosis of common duct.	Cholecystocolostomy.	"	S. to s.	1	.....	.....	Patient's temperature normal; button passed on the 15th day.
4	Feb. 20, 1894.	"	Robert Abbe.	Chronic obstruction.	Cholecystoenterostomy.	"	"	1	.....	.....	Good recovery; button passed on 12th day, and patient has remained well; cholecystostomy 4 months previously.
5	Sept. 17, 1894.	"	Silver, H. M.	Stenosis of cystic duct.	Cholecystoenterostomy.	"	"	1	.....	.....	Button not passed up to the 35th day, unless it escaped observation.

SIDE-TO-SIDE ANASTOMOSIS.

No.	Date.	Publication.	Operator.	Diagnosis.	Operation.	Method.	Position.	RESULT.		Cause of death.	Remarks.
								R.	D.		
1	Aug. 16, 1894.	Not published.	Meyer, Willy.	Fæcal fistula.	Ileo-colostomy.	Murphy button.	S. to s.	1	.....		Oblong button used in this case, which passed on 10th day without pain or difficulty.

effected by the button. Some of these cases have not yet been reported. Of these patients, eighteen recovered and five died, giving a mortality of 21·7 per cent. and 78·3 per cent. of recoveries. If we add to these twenty-three cases thirty-three others previously collected by Professor Murphy and published in the *Chicago Clinical Review* in June, 1894, in which thirty-two patients recovered and one died, we get a better result—a mortality of 6·9 per cent. and 93·1 per cent. of recoveries. But it must be borne in mind that in all probability many unsuccessful cases have not yet been placed on record. There were also collected eleven cases of gastro-enterostomy, in which seven patients recovered and four died—mortality, 36·3 per cent., and recoveries, 63·7 per cent.; eleven cases of cholecystoduodenostomy for cholelithiasis, in which ten patients recovered and one died—mortality, 9·1 per cent., recoveries, 90·9 per cent.; five cases of cholecystenterostomy for malignant disease, in which two patients died and three recovered—mortality, 40 per cent., and recoveries, 60 per cent.; and one case of lateral anastomosis, in which the patient recovered.

If now we add all of the cases, we get a grand total of eighty-four, of which seventy-one recovered and thirteen died—a mortality of 14 per cent. and recoveries 86 per cent. Of the deaths, two were due to hæmorrhage, six to shock, two to intestinal obstruction, two to failure of the button, due to a wrong-sized button being used, and one to continued peritonitis. In the *Deutsche Medizinal-Zeitung*, Berlin, May 25, 1893, Ramon von Baracz gives the mortality of intestinal anastomosis at 24·5 per cent.

Professor Murphy's Consideration of the Objections raised by Dr. Wiggin to the Button.—The following was received from Dr. Murphy too late to be read at the meeting:

"The statement that the button is a foreign body in the intestinal tract, and may be retained, thereby rendering a secondary operation necessary for its removal, is true, and it has occurred; but let us ask some questions as to the case to which, I believe, the doctor refers, and some of the particulars of which I have learned indirectly: Why was the button retained, where was it retained, what was the nature of the case, and in how many cases has it occurred? Further, What danger is there, when the case is properly managed, should it occur? In cases of intestinal fistula in which lateral approximation is performed, where a large portion of the fæces escapes through the fistula, where is the current of the fæces? Through the proximal end out of the fistula. The button would therefore naturally fall into the proximal end, and present itself with the fæces at the fistula. If the fistula be closed at the time of the primary operation, the button will be forced with the contents of the intestinal tract on into the distal end to the rectum.

If, on the other hand, the fistula be closed after the button presents itself at the opening of the fistula, the contraction of the portion of the bowel which is rendered useless by anastomosis will force the button to the opening, and it will pass on with the contents. The button may be removed through the fistulous opening with proper and careful dilatation of the fistula, an operation which no surgeon would consider of grave importance. Again, it has been retained by a fibrous band in the hepatic flexure of the colon; it produced no symptoms of obstruction, but was found there post mortem. Another case in which it was retained was one of secondary carcinomatous growth of the sigmoid flexure, where anastomosis had been performed higher up; here also there were no symptoms of obstruction. There has not been reported to me, in the one hundred and thirty-six cases recorded as already operated with the button, a single case in which the symptoms of obstruction were produced by retention of the button, and only two reported in which the button was retained, also one of which I have heard indirectly. This would therefore appear to me to be a very small objection, and I can not consent to this objection being of sufficient importance to designate the instrument unsurgical.

"The second objection, that we depend on the craft of the cutler rather than on the skill of the surgeon, is not well taken. We might as well argue that we depend on the silk manufacturer for the silk used; we do, but the cautious surgeon tests his silk; he should also test his button. I have volunteered to examine the buttons for all of the manufacturers. I have sent models to all manufacturers who have requested them, and would gladly inspect, and do inspect, all buttons sent to me for that purpose. I have found a number of reliable instrument houses making perfect buttons. With this advantage, there is no conscientious surgeon justified in using a button unless he knows that it has been inspected or has been manufactured by some reliable house. There are defective buttons on the market; this I am powerless to avoid, as our ethics prevented me from procuring a patent on the button, thereby controlling its manufacture. I certainly do not believe that the fact that defective buttons have been manufactured is a valid argument against the utility of the device. I congratulate the doctor on the result obtained in his experiment of double anastomosis in one sitting. He is the first to use the button in that way, and I see no objection to its use."

55 WEST THIRTY-SIXTH STREET.

Changes of Address.—Dr. Frank Van Fleet, to No. 116 East Eighty-second Street. Dr. D. C. Lewis, from Skaneateles, N. Y., to No. 927½ Gates Avenue, Brooklyn.

THREE CASES OF LARYNGEAL NEOPLASM.*

By CHARLES H. KNIGHT, M. D.,

NEW YORK.

LARYNGEAL growths are so rare in this country that it seems desirable that all cases observed should be placed on record. In this way we may hope to reach trustworthy conclusions as to the relative frequency, the diagnosis, and the best method of treating the several varieties of neoplasm. Two of the three cases which I have to report present little or nothing unusual. The first case, which might be properly denominated a process of degeneration rather than a neoplasm, is at least very exceptional. In a partial review of the literature of the subject no similar case has been discovered.

CASE I. *Diffuse Subglottic Myxoma; Partial Removal by the Mouth with Mackenzie's Forceps; Tracheotomy and Radical Extirpation of the Growth through the Wound.*—A. M'G., aged forty-eight years, first came under my observation at the Vanderbilt Clinic in the summer of 1890. For a year or more she had noticed increasing hoarseness and wheezy respiration, especially on exercise. She had some cough, with rather free expectoration. She supposed she had asthma. The general health had suffered somewhat in consequence of the disturbance of sleep at night, but no pulmonary lesion could be detected, and there was no indication of constitutional disease. The patient had the appearance of being a heavy drinker. She had a high grade of chronic pharyngitis and laryngitis, with considerable thickening of the mucous membrane, as is generally seen in the throats of alcoholics. In addition the laryngoscope disclosed a mass of finely lobulated tissue extending from immediately beneath the vocal bands for an indefinite distance downward, completely encircling the air-tube and markedly diminishing its caliber. The patient was very intractable and for many weeks it was found unsafe and impossible to use endolaryngeal instruments. In the meantime the local irritation was allayed in a measure by sedative steam inhalations and menthol sprays. Finally, a Mackenzie forceps with extra long blades (three inches from the angle to the tips) and cutting antero-posteriorly was crowded between the bands and masses of the neoplasm were nipped off. Sections of this tissue were examined under the microscope and were pronounced to show the features characteristic of papilloma. At several subsequent sittings portions of the growth were removed in a similar way until the breathing ceased to be impeded and the voice became comparatively clear. The patient felt so much more comfortable that she gave up treatment until December, 1891, when she came to my clinic at the Manhattan Eye and Ear Hospital. She then had a good deal of dyspnea and her breathing was very stridulous. It did not appear that the growth had recurred at the region reached by the forceps, but lower down the neoplasm was encroaching upon the lumen of the windpipe. It seemed to be impossible to get at the growth through the larynx, and an external operation was advised. For six months no very marked change in the condition took place. Then the obstructive symptoms became aggravated and the patient concluded to submit to operation. On June 23, 1892, six minims of a ten-per-cent. solution of cocaine having been injected under the skin just below the cricoid cartilage, an incision two inches and a half long was made over the upper rings of the trachea. The wound was bathed with cocaine solution as the

layers of tissue were divided until the trachea was exposed. The bleeding having been controlled by pressure and torsion, the trachea was opened by section of its first three rings. The walls of the trachea being retracted, the morbid tissue was removed with cutting forceps and curette. The growth was found to involve the entire circumference of the windpipe from the under surface of the vocal bands to a point a half to three quarters of an inch below the lower limit of the wound. Hæmorrhage from the tracheal wall was very moderate. The patient made no complaint of pain or special discomfort during the operation, and no difficulty whatever was experienced. A trachea tube was inserted and the wound sutured above and below it. The tube was removed on the third day. With the exception of a mild attack of bronchitis on the ninth day there was no unfavorable symptom. At the end of the third week the tracheal fistula had healed and the patient was discharged. Photomicrographs of sections of the tissue removed at this



A. M'G., August, 1890. Subglottic myxoma.

operation have been made for me by Dr. Leaming and are herewith exhibited. The growth appears to be made up chiefly of myxomatous tissue, and has a striking resemblance under the microscope to the morbid condition so frequently met with at the posterior end of the inferior turbinated body. No structure typical of papilloma can be discovered.

The special points of interest to me in the foregoing case were: (1) The facility with which the trachea was opened and cleared with the aid of cocaine, and (2) the microscopic structure of the lesion itself. It is rather remarkable that the first report should have made it papilloma without reservation, while the latest examination is unable to discover any papillomatous tissue whatever. Either the tissue must have undergone a transformation, or the first examination must have been faulty. The latter conclusion is the only tenable one in view of the absence of all traces of papillomatous structure at present, and of the improbability of a change from papilloma to myxoma. In order of frequency benign neoplasms of the larynx are usually enumerated as follows: papilloma, fibroma, cystoma, myxoma, adenoma, lipoma, angioma. Myxomata

* Read before the American Laryngological Association at its sixteenth annual congress.

are generally pedunculated and form distinctly circumscribed, smooth, or lobulated tumors, but, as in my own case, the neoplasm may assume the form of a sessile myxomatous degeneration. In most of the cases reported their point of attachment has been one of the vocal bands, and of benign growths in general it may be said that they rarely invade the infraglottic region. As regards situation and form the foregoing case would seem to be extraordinary.

CASE II. *Papilloma of the Larynx; Removal with Mackenzie's and the Schrötter-Türk Forceps; Electric Cauterization of the Base of the Growth.*—J. C. H., aged twenty-eight years, was sent to me by Dr. S. D. Powell on March 31, 1894. The history of the case is very brief and simple. The family record is quite free from taint. The patient himself has not been ill since childhood. During the spring of 1893 he noticed that his voice was getting weak. As he expresses it, he found himself unable to "holler." He has no recollection of ever having had a severe cold, but has long been in the habit of talking a great deal and in rather a loud tone of voice. He gradually became worse until in October, 1893, eight months ago, his voice completely left him, and since then he has been able to speak only in a whisper. His general health has been good. He has had no cough and no constitutional disturbance. With the mirror, an irregular lobulated tumor, pale in color and immovable, was seen to occupy the anterior third of the larynx above and between the vocal bands. A small tab of hyperplastic or neoplastic tissue, independent of the main tumor, projected from the right vocal band posteriorly. There was more or less diffuse hyperæmia, but the contour of the larynx in general was unchanged. There was no lesion of other parts of the upper air-passages aside from a moderate degree of chronic rhinopharyngitis. The patient was quite tolerant, and with the aid of cocaine no difficulty was found, on his second visit, in removing a piece of tumor with the Schrötter-Türk forceps. At subsequent visits on alternate days the Mackenzie cutting forceps was used to much better advantage, until in two weeks all the growth had been removed from above the vocal bands, and the patient was able to speak in a loud voice. There still remained below the right vocal band a strip of tissue to which a curved cautery electrode was applied without damaging the band. In the meantime the larynx was sprayed each day with a solution of alumnol, twenty grains to an ounce. The patient was then obliged to return home. He was accordingly sent away, warned of the possibility of recurrence, and with instructions to use the alumnol spray daily and to talk as little as possible. The latest report in this case, within a week, states that there has been steady improvement in the quality of the voice, which is now almost natural and nearly as strong as ever. No microscopic examination has yet been made of this growth, but its character seems to be unmistakable.

There are two points of interest in this case: (1) The rapid and complete restoration of voice after its prolonged abolition, and (2) the efficacy and safety of the electric cautery point in attacking a neoplasm below the vocal bands. The question also arises whether alumnol may prove to be an agent of value in limiting a tendency to recurrence on the part of growths of this kind.

CASE III. *Multiple Papilloma of the Larynx; Removal with Mackenzie's Forceps; Recurrence and Removal in Twelve Months; Second Recurrence and Removal Five Years Later.*—This patient was a native of Bermuda, a man about thirty years of age, in perfect general health. The only symptom

complained of was loss of voice, which had been coming on for a year or more. The patient says that he gradually became conscious of something flapping up and down in his throat during forced respiration and on attempting to speak. He was a very intelligent and tolerant subject, and no difficulty was found in relieving him by means of Mackenzie's forceps of a neoplasm as large as a cherry stone which was attached to the right vocal band near the anterior commissure, and of a smaller one which sprang from the left ventricle. The voice was very much improved, but did not become entirely clear. A year later he returned, and the condition was found to be rather worse than at first. Several weeks were spent in clearing out the larynx, the growths having recurred at the original sites and a new growth having arisen from the right vocal band at about its middle. From this time there was no trouble, except occasional hoarseness, for nearly four years. In October, 1893, more than five years after the second operation, the patient came to me a third time, unable to speak with loud voice. The anterior commissure and the left ventricle were again the affected points. There had been no new developments, and the larynx in general looked better than on his second visit. A third time the larynx was freed with Mackenzie's forceps, especial attention being given to the ventricular neoplasm. Laryngeal sprays of alumnol were used in this as in the preceding case after the final operation, and the patient states that he is now better than he has been at any time within the last six years. Dr. H. B. Douglass, one of the pathologists at the Manhattan Eye and Ear Hospital, has been kind enough to examine these several specimens and reports that the growth last removed, like the others, is a pure papilloma.

It is somewhat difficult to say what may be the causes of recurrence in certain cases of papilloma of the larynx. A continuance of the conditions—local, climatic, and hygienic—which originally favored the growth doubtless predisposes to relapse. It is probably true that some mucous membranes have an inherent tendency to proliferation or neoplastic development. Finally, the inaccessible situation of certain neoplasms—for example, the ventricle, the anterior commissure, or the under surface of a vocal band—may render complete removal difficult, if not impossible. In this connection the question arises, When should we suspend endolaryngeal manipulations and resort to an external operation? Spontaneous disappearance of laryngeal papillomata has been observed in children, and is especially favored by that condition of physiological rest which follows a tracheotomy. Such an event is certainly less probable in adults. On the other hand, the immediate dangers of a thyreotomy, the absence of positive assurance against return, even when this method has been employed, and the risk to the integrity of the vocal bands, or of their imperfect reposition with consequent impairment of function, should deter us from precipitate interference by an external operation. In order to secure more accurate readjustment of the parts it has been suggested that section of the thyroid cartilage should not be complete, its upper border being left intact. While in adults this method may be feasible, in young subjects the field of operation would be contracted by such a procedure to an embarrassing degree. The existence of dangerous dyspnœa or dysphagia as a complication of laryngeal neoplasm has been pronounced by some authorities the only indication for a thyreotomy. The idea of possible transformation from a benign to a

malignant character as a result of traumatism from repeated use of instruments seems to have been satisfactorily disproved. Finally, the introduction of cocaine may be said to have revolutionized intralaryngeal surgery. Operations that formerly would have been impossible may now be done with the greatest ease and deliberation. In view of these facts the conclusion seems to be justified that we may safely prolong attempts at removal of benign neoplasms by the natural passages to an indefinite extent.

147 WEST FIFTY-SEVENTH STREET.

OBSERVATIONS ON SOME OF THE RESULTS OF CUTTING OPERATIONS ON THE NASAL SÆPTUM.*

BY THOMAS R. FRENCH, M.D.,
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THE few remarks which I have to make, which are presented with the hope of eliciting fruitful discussion more than for the purpose of contributing any special innovations, deal with facts which, for the most part at least, are recognized by the members of this association, but which, so far as I am aware, have not been presented for discussion. These remarks will be directed to a brief consideration of two conditions which may present as the result of cutting operations for the removal of spurs and thickened deflected sæpta—viz., perforations and membranous adhesions.

Perforations.—To rectify deviations of the cartilaginous sæptum without thickening, the advice usually given is to destroy the resiliency of the cartilage by cutting through it in various ways, fracturing the fragments, forcing them up to the median line, and holding them in position until healing has occurred. Although by the admirable operative methods suggested by Asch, Roberts, and Steele the best results are often obtained, it is nevertheless a fact that in some cases it is impossible to obtain sufficient relief by such means. By those methods the sæptum can not always be brought to a perfectly perpendicular plane, and unless it is, the greater air pressure on the concave side, together with the natural resiliency of the cartilage, not infrequently forces the sæptum further toward the narrow naris. This is particularly apt to be the case during the period of the greatest constructive activity, a period in which operations on the sæptum are most commonly demanded.

If, as is maintained by some writers, ulceration or erosion of the edges never occurs when a perforation is made through the sæptum with a cutting instrument if the wound is protected from irritation, or, when ulceration exists, it can always be made to heal, and there is no danger of ultimate loss of the sæptum or even external deformity resulting from a perforation, there can be no objection to deliberately cutting away all of the obstructing cartilage, and so opening up both nasal passages and obtaining

an abundant supply of air through the nose. But is it a fact that ulceration never occurs when a perforation is made with a cutting instrument if the wound is protected from irritation, or that ulceration, when present, can readily be made to heal, or that external deformity never results from perforation of the cartilaginous sæptum? The danger of perforating is spoken of in almost all writings on operations on the sæptum, and it is the natural inference that it is the belief of the authors that ulceration or erosion is apt to follow perforation. Zuckerkandl* says that in the cases of healed perforation of the sæptum dissected by him the mucous membrane on the border of the hole was found to be very thin, and I presume that is generally if not always so; but this thin covering will, I believe, always be developed if the wound made in perforating the sæptum with a cutting instrument is carefully dressed and protected from irritation; but the patient not infrequently dislodges with his finger a few of the crusts formed in the process of repair, and ulceration is eventually produced, which in the course of time slowly progresses, filling the nasal passages with obstructing secretions and causing extensive destruction of the sæptum. Because of this danger I have thus far never perforated the sæptum unless reasonably certain that the edges could be adjusted so that an opening would not be left. I may have overestimated the danger of leaving a hole in the sæptum, but in the light of the evidence presented by a considerable number of cases falling under my observation of the destruction resulting from perforation, I have been constrained to avoid making one if a successful result can be obtained in any other way. I have seen a number of cases in which perforation has been deliberately made with the most satisfactory results, and many others in which the results were far from satisfactory; but in none of the latter had careful after-treatment been carried out. If it can be demonstrated that with proper surgical precautions and after-treatment the edges of a perforation can always be made to heal, I feel sure that we would all resort to this method of operating in certain cases as being altogether the surest way of obtaining permanent relief.

Perforation of the cartilaginous sæptum, as a result of a non-specific ulceration or erosion, is described in most modern text-books on diseases of the nose, and has been made the subject of a number of special articles; but this condition has been so little considered in its relation to sæptal operations that I desire to present for discussion a question which has frequently arisen in my mind—viz., If a successful result can not be obtained in any other way, are there not conditions under which perforation of the cartilaginous sæptum can be made a perfectly justifiable procedure?

Delavan,† in referring to Blandin's operation by means of the punch, says that "this procedure is eminently clumsy and unsurgical, and in reality is unjustifiable as being liable to do more harm than good."

* Read before the American Laryngological Association at its sixteenth annual congress.

* *Anatomie der Nasenhöhle*, vol. i, second edition, Vienna and Leipzig, 1893.

† *Reference Handbook of the Medical Sciences*, vol. v, p. 272.

Roe* condemns the use of the punch for the removal of the angular portions of a deflected sæptum. He asserts that "by its use we simply cut away a deformity which we should correct, and leave a hole through the sæptum in which crusts and secretions constantly accumulate, thus becoming a lasting source of irritation."

Lennox Browne,† in commenting upon Bosworth's statement that he had only once perforated a sæptum, remarks: "Looking moreover to the comparative frequency of sæptal perforations, unassociated with any dyscrasiæ, caries, or necrosis, and their non-liability in such circumstances to cause deformity—a point correctly insisted upon by Bosworth himself—one hardly sees why a perforation should be so much dreaded." Elsewhere in the same work he writes: "The entire closing of a perforation by healing process is unknown in my experience, and it is doubtful if such a happy result ever occurs; but spontaneous or induced arrest of the ulceration is the rule."

Bosworth,‡ in writing on perforations due to erosion, expresses his belief that their clinical significance is trivial, that they do not weaken the support of the nose to the extent of causing external deformity.

Greville Macdonald,* in writing on deflections of the sæptum, says: "Almost always, however, there is a certain amount of thickening in the cartilaginous sæptum, the paring down of which will generally prove sufficient for the removal of symptoms. Should there not be sufficient material for this, no objection can be raised to cutting off enough of the projecting angle with the saw, although we thereby make an opening into the other side. From such a procedure there is no risk of subsequent deformity to the nose."

McBride|| is of the opinion that falling in of the nose does not occur. He mentions the case of a medical student in whom the cartilage was deficient from just within the nostrils almost if not quite to the dorsum of the nose. The tip of the nose was a little lowered, but no deformity could be said to exist.

Morell Mackenzie,^ in writing on traumatic rhinitis, says that "the lower and anterior part of the cartilage always remains intact; the bridge of the nose never falls in, . . . although, when perforation has once taken place, it is difficult to prevent the formation of a tolerably large hole in the sæptum; the morbid action is strictly confined to a small area, beyond which its ravages never extend. The use of simple sprays will soon restore the surrounding mucous membrane to a fairly healthy condition."

Lefferts,◇ after giving suggestions as to the course to be pursued in the treatment of erosion or perforation of the sæptum due to mechanical irritation, says: "Care, pa-

tience, and persistence are the only elements now necessary for the attainment of success."

Robinson,* in writing on hæmorrhage due to erosion or ulceration of the sæptum, asserts that a plan of very simple treatment, when persisted in, will bring about a complete cure in one or two months.

E. J. Moure,‡ in discussing the value of electrolysis for the destruction of deviations and spurs of the nasal sæptum at the Eleventh International Medical Congress held in Rome last month, said that, in cases of marked deviation without thickening, he preferred a quickly made perforation, permitting the access of air into both nasal fossæ; and Ruault, at the same meeting, in referring to the possibility of perforation occurring as the result of the use of electrolysis, expressed the opinion that it was "absolutely immaterial; indeed, it is often necessary to seek it in place of endeavoring to avoid it, as this is the only rational intervention in cases of total lateral deviation."

It will be seen from the foregoing quotations from the writings of careful observers that there is no diversity of opinion regarding the danger of external deformity occurring as the result of perforation of the sæptum, that they are generally agreed that perforations due to erosion do not extend beyond the cartilage, and that, even after the destructive process has continued for a long period of time, it can be arrested, and the edges made to heal under appropriate treatment. The question is simply as to whether a perforation ever constitutes a morbid lesion unless subjected to mechanical irritation. I do not recall having seen a case of non-specific perforation with unhealed edges in which the parts were not being subjected to irritation of some kind.

I am not aware that the presence of a perforation with healed edges is in any way harmful, even though it has considerable dimensions. A certain amount of catarrhal disease of the mucosa is usually present in these cases, but there is no evidence to prove that the perforations bear any causative relation to it unless the edges have for a long time been the seat of ulceration. If, therefore, a perforation does not in any way interfere with the proper physiological function of the nose, its presence can be a matter of but little consequence so long as its edges are healed.

After the study of perforations in a large number of cases, I am inclined to the belief that, with proper care in the after-treatment, perforations can be deliberately made without injury and with great relief in a certain class of cases; that, if the breath-way through the obstructed side can not be obtained without leaving a hole in the cartilaginous sæptum, such a procedure is justifiable if the patient can be impressed with the necessity of leaving the parts alone, and it is reasonably certain that the case can be carefully followed until the healing of the edges has occurred. Otherwise, I believe it to be an unjustifiable method of operating. I except from this statement the perforations made near the entrance of the nostrils, particularly in a

* *New York Medical Journal*, April 7, 1894.

† *Diseases of the Throat and Nose*, London, 1893.

‡ *Diseases of the Nose and Throat*, New York, 1889.

* *Diseases of the Nose*, London, 1892.

|| *Diseases of the Throat, Nose, and Ear*. Edinburgh and London: 1892.

^ *Diseases of the Throat and Nose*. London, 1884.

◇ *Medical News*, vol. xl, 1882.

* *American Laryngological Transactions*, 1887.

† *Journal of Laryngology, Rhinology, and Otology*, vol. viii, New Series, No. 5, 1894.

sæptum bent obliquely across one or both openings by the Blandin punch. This method of securing an increased supply of air is, it seems to me, a highly objectionable one for several reasons: (1) because of the irritation to the edges which is certain to be produced by the stream of air drawn through the opening; (2) because of the easy access of the finger to dislodge accumulated crusts; (3) even when the edges are healed, it is apt to give rise to a whistling sound, which is annoying to the patient as well as to others; and (4), while perhaps supplying a sufficient amount of air for respiration, it does not restore the normal function of the obstructed naris. I believe it is safe to say that, if a perforation is made in the sæptum of a subject free from dyscrasia, and the edges are not irritated, but rather subjected to careful antiseptic treatment, they will heal. Under such circumstances I believe that the procedure is safe, is justifiable, but under any other conditions it is to be condemned. The removal of the ban which has been placed on this method of operating to the extent which has just been indicated would, I feel sure, result in relief to a considerable number of cases which no other means now employed will effectually reach.

Large perforations increase the liability of fracture of the nose; but, if the edges are healed, that certainly is a preferable condition to the possession of a stout sæptum, if such can only be maintained at the expense of an obstructed naris. My contention, therefore, is this: that, in any case without dyscrasia in which it is known that the after-treatment can be thoroughly carried out, and the intelligence of the patient is sufficient to guarantee that the wound will not be subjected to mechanical irritation, there can be no objection to the removal of a portion of the cartilaginous sæptum for the relief of stenosis due to angular deflection without thickening, or to the sæptum being much too large for the bony framework of the nose.

I am well aware of the dangers associated with this teaching; that, if perforation of the sæptum is sanctioned, it will be greatly abused; but this does not alter the fact that if the osseous portion of the sæptum is not encroached upon and the after-treatment is all that it should be, greater relief can often be obtained from this procedure than can be afforded by any other method of operating.

Membranous Adhesions.—I do not doubt that you will agree with me when I say that one of the most disappointing and annoying things in association with nasal surgery is the occurrence of adhesions within the nasal passages. That they are in the majority of cases the result of operations performed by unskillful hands is undoubtedly true, but that they occur not infrequently after operations performed by surgeons of large experience and possessing skill and judgment is equally true.

In addition to the ordinary surgical knowledge one needs to possess something of the art of the sculptor as well as the skill of the mechanic in order to cope successfully with the class of cases to which I refer. What may appear to be a perfectly satisfactory result immediately after an obstructing mass of cartilage has been removed may in a few weeks prove to be extremely disappointing and unsatisfactory because of the formation of extensive adhe-

sions binding the walls of the passage together. Such cases reflect discredit upon the operator, and certainly in most cases the reflection is just and proper, for a want of care in operating is no doubt the commonest cause of adhesions; but there are cases in which the exercise of the utmost skill and care would seem to be insufficient to prevent their occurrence.

It is, I think, generally agreed that adhesions do not occur after operating on the turbinated bodies unless that part of the sæptum lying directly opposite has been injured; and that they do not occur after cutting operations on the sæptum unless the turbinated tissue opposite the wound has been broken during the operation, or has recently been subjected to some operative procedure, the wound from which has not completely healed; in other words, that adhesions can not occur after operating on either wall of the naris if the mucous membrane on the opposite side is intact. The sides of a nasal passage may be brought into contact after removal of redundant cartilage by the collapse of the outer wall, or by turgescence of the turbinated structure opposite as the result of irritation from the wound on the sæptum, thus causing contact for a varying length of time. It is during this period in such cases that adhesions occur if there is a solution of continuity on both walls at points lying directly opposite each other; but if the mucous membrane on one wall is unbroken and smooth, adhesions will not take place no matter how much swelling there may be or how long the parts remain in contact during the process of repair.

Occasionally the results of operations on the sæptum performed by careful surgeons look like bungling attempts to secure relief, for, after the parts are healed, a portion of the opposite wall is found to have become adherent to the wound, and the condition of the patient is worse than that for which the operation was originally performed, and yet the operator may feel certain that the opposite wall had not been injured by his instruments or been the seat of recent treatment of any kind. I believe that many such cases can be explained by a fact which seems to have been overlooked, and has apparently been proved by my experience in a number of cases—viz., that cut surfaces on the sæptum will become adherent to scar tissue on the turbinates made by the galvano-cautery at some previous time. My meaning may perhaps be made clearer by referring to the cases of three patients quite recently under my care for relief of nasal stenosis and in whom adhesions followed operation on the sæptum.

I was asked to operate in the late spring for the removal of an overgrowth of cartilage in a very narrow nasal passage of a young lady whose inferior turbinates had been considerably reduced in size by the aid of the galvano-cautery point several months before. I removed the redundant cartilage with the saw and immediately afterward the patient left town for the summer. When she reported again in the autumn I found a long and narrow bridge across the naris corresponding in length and width to the wound which I had made in removing the cartilage. As during the sawing operation the greatest care was taken to prevent injury to the opposite wall, I could find no other

explanation for the adhesions than that they had occurred between the cut surface of the sæptum and the surface of the inferior turbinated body made rough and uneven by the previous application of the galvano cautery.

In another case in which an operation of a similar character was performed in the late spring, and in which equal care was taken to avoid injury to the opposite wall, adhesions occurred during the summer, and I am convinced that they were not due to injury of the turbinated tissue during the operation. I had advised the removal of a large spur on the sæptum of this patient a year before, but as she objected to a cutting operation at that time I contented myself by destroying with the galvano-cautery a considerable amount of hypertrophied turbinated tissue lying opposite the portion of the cartilage which was removed a year later. I am unable to find any other explanation for the adhesions in this case than that the scar tissue resulting from the galvano-cautery incisions formed a good surface for the granulations of the sæptal wound to become attached to.

In still another case, operated upon for the removal of an ecchondroma, just before the summer vacation, quite extensive adhesions were found to be present in the autumn. In this case applications of the galvano-cautery had been made to the turbinated tissue in the same naris by another physician some months before she came under my care.

What the characteristics of cicatrices produced by the galvano-cautery on turbinated tissue are, that render them liable to become engaged in the process of repair of a wound in contact with them, I am unable to say. The microscope will, no doubt, assist in making this plain, and I regret that I have not had an opportunity to make such an investigation. It is more than likely that their liability to become attached to cut surfaces depends largely upon the character and extent of the burned surface of the turbinates—that is, whether the scar is the result of a wound made by incisions with the edge or point of a loop, or by a flat burner.

If my deductions, in regard to the liability of adhesions occurring between cut surfaces on the sæptum and cicatrices on the turbinate tissue resulting from the use of the galvano-cautery knife, are correct, then in patients who present themselves for treatment, whose nares have never been subjected to operative procedures, and in whom there is need of the destruction of turbinated tissue and removal of obstructing cartilage or bone, the sæptum should be operated upon first, when, after a month or more has elapsed and it is certain that the mucous membrane is completely reformed, the turbinates can be safely destroyed by any method. If, however, as is not infrequently the case, patients object to a cutting operation on the sæptum, but are willing to submit to the destruction or removal of the turbinated hypertrophy, preference should be given to the use of the snare or acids, in order to avoid the possibility of leaving a surface which might become adherent to a wound opposite in the event of a cutting operation on the sæptum being performed later. In all cases requiring cutting operations on the sæptum, inquiry should be made to determine whether the galvano-cautery has

been used on the turbinated body opposite. If it has been, it is advisable to keep the wound under observation for at least two or three weeks in order to prevent adhesions, should a tendency to their formation be shown.

Without doubt adhesions are frequently occasioned by saws with unprotected ends, and the unskillful use of trephines and cutting forceps in narrow passages. A distinct advance will be made when all instruments used for sæptal operations are constructed with a view to preventing the possibility of wounding the outer wall of the naris. I believe that severe hæmorrhages following cutting operations on the sæptum are not uncommonly due to injury of turbinated tissue, and a pointed saw seems to be peculiarly adapted to insure injury in a narrow passage.

An error which experience has taught me is that of cutting outward with the saw at the floor of a narrow naris in finishing a section from above downward. Injury of the inferior turbinated body is apt to be produced in this way and result in adhesion of the sides at, or just above, the floor, which not only cuts off a part of the breath-way but interferes with proper nasal drainage.

In my opinion the upward cut ought always to be made first in dealing with large spurs or deflections, for, if the section is begun above, the lower portion of the part to be removed is almost instantly obscured from view by the blood clots which form on the floor of the naris. This remark is especially applicable to sawing operations performed while the patient is under the influence of ether. If a sæptal projection is removed by cutting entirely in one direction, a ridge is not uncommonly left at the edge of the wound which necessitates further operative interference to eradicate. It is a good rule, in operating with the saw, to begin the section by cutting upward, and finish it by cutting downward; but whether it is begun from above or below, the section should be finished by a cut from the opposite direction, for in this way the maximum amount of tissue can be removed from the sæptum with the least danger of injury being done to the outer wall.

SINGERS' NODES.*

By FREDERICK I. KNIGHT, M. D.,
BOSTON.

THE affection of which I wish to say a few words consists, as I have seen it, of a small ovoid nodule situated on the edge of one or both vocal cords at about the junction of the anterior and middle thirds, and can usually be attributed to extraordinary or improper use of the voice. It has been described as one of the conditions found in chronic laryngitis, but also as "trachoma of the vocal cord" and "chorditis tuberosa." It occurs, however, as has been pointed out by Rice,† as a primary affection, with or without subsequent general laryngitis. I described a case as "trachoma" in the *Archives of Laryngology* for 1883. The cases of Türck, who suggested this name, pre-

* Read before the American Laryngological Association at its sixteenth annual congress.

† *Transactions of the Am. Laryngological Assoc.*, 1890.

sented multiple granulations not only on the edge but on the upper surface of the cords, and the name seems most appropriate for these cases. The single nodule on one or both cords, although it may be pathologically the same, constitutes clinically a distinct affection, and is, I think, entitled to a separate designation. Whether the term "chorditis tuberosa," which Dr. Rice adopts, is entirely satisfactory is doubtful, as there may be little or no chorditis, and this term has been also unfortunately applied to the diffuse form. Singer's node is not exactly appropriate, because the subject, though usually, is not always a singer. To be exact, we can only at present say that we find a node on the vocal cord in the above-mentioned site. This is usually whitish or yellowish-white in appearance, of the size of a millet seed or larger. There may be a depression in the edge of the opposite cord in the corresponding spot, or a little nodule here also. The mucous membrane of the adjacent parts of the cord may show signs of inflammatory action, but in the beginning this is often absent. The cause of this condition will almost always be found to be strain or wrong use of the voice in singing or speaking. It is said that friction of the edges of the cords is greatest at this point, hence the pathological change. The nature of this development has been but little studied histologically. Kanthack* examined three specimens from Krause's clinic, and found in one a simple local hyperplasia; in the second, cornification; and in the third, such a growth as comes from chronic irritation. No glands or vestiges of such were found.

The examinations were made on account of a statement by B. Fraenkel that these nodes were of glandular origin. Kanthack also examined twenty larynges, and found no glands in the vocal cords.

Rice had sections examined from two nodules which he removed from the vocal cord by a small snap guillotine, and the result in both cases was connective tissue and epithelial elements in largely increased numbers. M. Sabrazes and M. Freche† report on the microscopic examination of three specimens, that they are to be considered as circumscribed hypertrophies of the epithelium and chorion of the mucous membrane. Sometimes the thickening of the epithelium predominates, sometimes it is rather the papillary prolongations of the chorion; mostly both participate in the hypertrophy. Wedl‡ made an examination of post-mortem sections of a "trachomatous" vocal cord in a patient of Türk, and found only hypertrophied connective tissue and proliferation of nuclei. This patient had the diffuse granular condition of both cords. She died of tuberculosis. It will be noted that histologically the nodules were of the same character as the single ones which we are discussing.

The symptoms produced by these little nodes vary from slight hoarseness to complete loss of voice. In the latter case there is usually a considerable amount of laryngitis, or paresis of the tensors.

The prognosis depends largely on the duration of the

condition, and the ability and willingness of the patient to carry out instructions. When seen early, and the patient is able to rest the voice, the prognosis is, in my experience, good; but if the patient is obliged to use the voice, especially if his method is wrong, it is serious, and under these circumstances the growth will probably continue and gradually increase, leading to the various secondary conditions, and, as in the case of all such developments, the older it is the harder is it to cause absorption or get a good result from operation.

The treatment of these nodules must vary with their size and form. Those which I have seen have been so small and sessile, so thoroughly incorporated with the cord, that any operative procedure seemed inadvisable, not only on account of the difficulty of extirpating the growth, but for fear of injuring the vocal cord. Sabrazes and Freche state that the nodule may be pediculated, in which case the operation would be comparatively trivial. I have never seen such, and should doubt their identity with the kind I have described. I should have hesitated to cut into the vocal cord in any of the cases I have seen, unless the voice seemed ruined forever, as it was, and this gave the only hope, for the integrity of the singing voice depends on the integrity of the edge of the vocal cord. In the few comments published on the treatment of this condition there has been a great confusion of this and the diffused trachoma of Türk, from which it must be distinguished, notably in the discussion at Baltimore on Dr. Rice's paper. Dr. Rice himself, in the illustration of his article and in his remarks on treatment, evidently had in mind the single nodule on the edge of one or both cords, but at the beginning of the article he says that Türk's description of this condition is comprehensive, whereas Türk describes only the diffused condition occurring on the surface as well as edge of the vocal cord. Dr. Westbrook describes a nodule on the vocal cord of one of his patients growing from the vocal process forward. Dr. Daly said that the condition was not uncommon in tuberculous families, evidently referring to a diffuse granular condition of the cords. Dr. Delavan spoke of the recommendation of forcing a probang covered with cotton through the glottis in the hope that the granulations might thus be scraped away, and that he had not found this method a success. This method was suggested by Voltolini for papillomata, which are often friable, but I can not conceive how any one could recommend it for the hard, closely incorporated nodule such as I have described. Neither should I expect to accomplish anything in this form but irritation—by scraping with the finger nail—as done in one case by Dr. Daly, even if I could reach the vocal cord. The epiglottis and tips of the cartilages of Santorini are as far as I can reach with my forefinger in most cases, and the vocal cords are considerably further off.

Dr. John N. Mackenzie said we should distinguish between a mere granular condition and the genuine chorditis tuberosa, evidently meaning by this latter term the diffuse form, as he says the whole cord is converted into a band like a granular lid, and is usually incurable.

In my cases so far I have found that by rest and as-

* *Internationales Centralblatt für Laryngologie*, etc., 1890.

† *Ibid.*, 1893.

‡ Türk. *Klinik der Kehlkopfkrankheiten*, 1866.

tringents, if there was also inflammation of the surrounding mucous membrane, the voice has been so far restored that I did not feel justified in risking cutting operations; but if after this treatment there was still no useful voice, I should not hesitate to employ Dr. Rice's guillotine and remove the protruding portion of the growth, if it could be engaged, hoping that the remainder would be more readily absorbed. I have not been able, from Dr. Rice's published paper or his remarks in the discussion, to find out just how much of a voice the patients whose nodules he excised ever acquired after the operation. Neither have I been able to learn how the nodules were removed nor the resulting condition of the voice in the cases of MM. Sabrazes and Freche (Lichtwitz's clinic) nor in the cases of Kanthack (Krause's clinic).

The object of this brief paper is, first, to call attention to the imperfect nomenclature of this affection, and to recommend the abandonment of the term "trachoma of the vocal cord" for the form of the affection which I have described, and the restriction to that form of the term "chorditis tuberosa," if it should seem best to retain it; and in the second place to elicit reports of operations on single nodules (unilateral or bilateral) situated as I have described, and especially the effect of their excision on the singing voice.

The Prize of the American Neurological Association.

The association offers a prize of two hundred dollars for the best essay on any subject connected with neurological science. This competition is open to physicians who are legal residents of States in North and South America. Essays must be sent to the secretary of the association, Dr. Græme M. Hammond, on or before the tenth day of May, 1895. Each essay shall be accompanied by a sealed envelope containing the name and addresses of the author, and bearing on the outside a motto, which shall also be inscribed upon the essay. Essays shall be type-written, in either the English or French language, and with the pages securely fastened. The council of the association reserves the right to reject any or all essays judged unworthy of the award. Each essay must exhibit original research, and none will be accepted that has previously been published.

The Babies' Hospital.—The new building was inspected by an invited company on Saturday afternoon, November 24th. Addresses by Bishop Potter and Dr. Jacobi were announced.

Mercurialized Traumaticine in Syphilis.—Traumaticine, a ten-per-cent. solution of gutta-percha in chloroform, has been employed by Dr. Peroni, of Turin, as a convenient vehicle for the cutaneous administration of mercury in syphilis. He adds to it a quarter of its weight of calomel, and after the patient has had a bath the syphilitic patches, if there are any, are painted over with the liquid. If there are none, the back is painted all over, and when the chloroform has evaporated the skin is left coated with a mercurial varnish which adheres closely. This treatment is repeated three times a week until the specific symptoms have disappeared. In papular, pustular, and squamous syphilides a successful result may be expected in from three weeks to a month. Of course, general treatment can be carried on simultaneously, but in very weak subjects, or in such as do not bear the internal administration of mercury well, the traumaticine method is very suitable alone. It may also be employed in the case of children with hereditary syphilis and in late cutaneous eruptions.—*Lancet*.

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THE MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

THE association's twentieth annual meeting, held in Hot Springs, Arkansas, last week, was an event well calculated to make a deep impression on those in attendance, whether members or visitors. This impression would rest partly on the character of the meeting itself and partly on the abundant evidence displayed of a sympathy and cordiality between the medical profession and the people at large in the Southwest that, we fear, one would fail to find in the Eastern and Middle States. Then, too, unusual devotion to professional progress was shown by the presence of many a practitioner from remote districts who had gone through great difficulties to get to the place of meeting.

Concerning the meeting itself, it must be remarked in the first place that the programme was one of exceptional interest. It was so full, indeed, that a person visiting the association for the first time, and therefore unaccustomed to its ways, might well have doubted the possibility of getting through with it; but justice was done to it, thanks to the association's excellent rules and to the promptness and decisiveness with which the president enforced them—moreover, time was found for the reading of more than one paper that was not down on the programme, although the proportion of papers read by title by reason of their authors' absence was not in excess of what is ordinarily observed at a meeting of the sort. As to the character of the papers, if we take paper and discussion together, there was not one that was not instructive, and many of them—far more, indeed, than one would have expected—were of superlative excellence.

The evidence that we have alluded to of a striking sympathy between the medical profession and the community in general throughout the Southwest lay in the generous action of the transportation companies and in the hospitality shown by the people of the entire region, especially those of Little Rock and Hot Springs. From as far east as Buffalo and Pittsburgh unusually low rates were afforded. It is true that, doubtless by inadvertence, the order by which they could be availed of in the regular way did not go into effect until a date so near the time of meeting that the few who started from these remote points or from others still more distant thought fit to take the risk of being obliged to forego its advantage by setting out in time to allow themselves a little leeway for making connections. For these few there was the temporary prospect of failing to profit by the arrangement that had been made, but those of them who knew the people of the Southwest were not worried, and they soon reassured their inexperienced fellow-pilgrims. Their ex-

pectation was not disappointed; the railway managers gave due heed to all properly authenticated statements and, we believe, remedied every real hardship. In particular, Colonel Snyder, of the "Big Four," is entitled to the thanks of visitors from the East. Not only did he devote much time during business hours to enabling them to get the advantage of the reduced rate, but he personally entertained a party of them at breakfast in St. Louis on the return trip. For all who went to the meeting by way of St. Louis there was an "official train" of six sleeping-cars that left that city on Sunday evening under the personal supervision of Colonel Townsend, of the Missouri Pacific Railway, who went on the train to Hot Springs, remained there through the meeting, and then took his two hundred or more friends—for such they had become almost at sight of him, so manifest were his carefulness and kindness—in safety and comfort back to St. Louis, where Colonel Snyder "did the rest."

The train arrived at Little Rock early on Monday morning, and there it was found that the citizens had provided an excellent breakfast for the company, also carriages wherein they were driven about so as to give them a view of the chief places of interest in the "City of Roses," and finally a dinner, after which the train proceeded on its way and reached Hot Springs before dark. Little Rock, it must be borne in mind, was simply on the route; its citizens had no selfish interest, direct or indirect, in the success of the meeting. Their action in the matter, therefore, was that of pure hospitality, such hospitality as is, alas, seldom or never seen in the North. At Hot Springs itself, too, the citizens joined with the physicians of the place in giving the members of the association a ball and a banquet, both of which were enjoyed to the utmost. In addition, there were receptions, riding parties, drives, and dinners to the full number that could be accepted. Although the season had not opened, three of the great hotels, unexcelled anywhere in their equipment and management—the Arlington, the Park, and the Eastman—placed their resources at the association's command, and, in particular, Mr. Hay, the genial manager of the Arlington, and his charming wife exerted themselves most untiringly to further the comfort and pleasure of the assembled company. Doubtless there is plenty of social entertainment and diversion in connection with our northern medical meetings, but rarely if ever the hearty, spontaneous hospitality that shone out in Missouri and Arkansas on this occasion. Mention of such matters would have no place in a medical journal but for the token they constitute of a tie between the doctors and their fellow-citizens of the Southwest such as must be the *raison d'être* of the Mississippi Valley Medical Association.

THE HOT SPRINGS OF ARKANSAS.

THE city of Hot Springs, made specially memorable at the present time by the fact that it was recently the scene of a meeting of the Mississippi Valley Medical Association, is beyond all question destined to become within a very few years one of the most popular health resorts in the world. Until now its merits have been obscured to those living at a dis-

tance by the known fact that it was infested by gamblers, lewd women, and quack doctors; but the meeting to which we have referred has set it straight, so to speak, before the medical profession, and all that a physician has to do now when he wishes to send a patient there is to adjure him to turn a deaf ear to the quacks' touters and put himself without reserve into the hands of one of the reputable practitioners of the city, of whom more than a score could be mentioned, the peers of any in the world.

If we were to base our judgment on chemical analyses alone, it would be puzzling to account for the cures wrought by the waters; practically, they contain nothing but silica. Nevertheless they do bring about unquestionably the recovery of many an invalid doomed without their aid to years of drooping health and an untimely death. How do they do it? The local physicians say that it is by virtue of their occasional a marvelous activity of the emunctories, whereby the system is enabled to tolerate huge doses of active drugs, while at the same time the patient, hoping for something akin to a miracle, subordinates all his thoughts to the effort to get well and obeys his physician's instructions implicitly.

Recognizing the efficacy of a sojourn in the romantic city of Hot Springs, together with a systematic use of its thermal waters, the Government has established on its reservation there a general hospital for the benefit of officers and enlisted men actually in the service and suffering from ailments that have been contracted in the line of duty and have resisted treatment at other military or naval hospitals. The hospital is now under the command of Lieutenant-Colonel Alfred A. Woodhull, a surgeon in the army, and its administration is such as any one who knows Dr. Woodhull would expect at the hands of that enlightened and conscientious officer. A circular issued from the adjutant-general's office says:

"Relief may reasonably be expected at the Hot Springs in the following conditions: In the various forms of gout and rheumatism, after the acute or inflammatory stage; neuralgia, especially when depending upon gout, rheumatism, metallic or malarial poisoning; paralysis, not of organic origin; the earlier stages of locomotor ataxia, or tabes; the early stages, only, of Bright's disease; diseases of the urinary organs; functional diseases of the liver; gastric dyspepsia not of organic origin; chronic diarrhoea; catarrhal affections of the digestive and respiratory tracts; chronic skin diseases, especially the squamous varieties; and chronic conditions due to malarial infection. Speaking generally, treatment by the Hot Springs water may be said to stimulate all the secretions and the organic functions, to promote digestion and assimilation, and to favor tissue metamorphosis and excretion, thereby relieving internal congestions, stimulating blood-making, increasing the appetite, and favoring new and healthy tissues at the expense of the old and inactive. The Hot Springs water is contraindicated in all acute inflammatory diseases, tuberculosis, organic disease of the heart or brain, cancer and other malignant disease, aneurysm, and all cases where stimulation of the circulation is to be avoided."

MINOR PARAGRAPHS.

THE TREATMENT OF THE VOMITING OF GASTRECTASIS BY OXYGEN INHALATIONS AND A DRY REGIMEN.

Is a recently published brochure Dr. Milran Kemhadjian calls attention to the value of oxygen inhalations and a dry regimen in the treatment of the stubborn vomiting of gastric dilatation. He administers from thirty to fifty litres of oxygen daily, and at each meal one hundred and fifty grammes of hashed meat, two eggs, a purée of potatoes, dried fruits, and a glass and a half of water. This treatment has seemed to exercise a calmative action and produce a certain sedative influence on the gastric reflexes in a very short time, and the author recommends its use as preferable to that of any other therapeutic measure.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending November 27, 1894:

DISEASES.	Week ending Nov. 20.		Week ending Nov. 27.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	19	6	21	3
Scarlet fever.....	93	3	87	7
Cerebro-spinal meningitis...	0	0	1	1
Measles.....	46	2	48	4
Diphtheria.....	168	30	189	57
Small-pox.....	6	6	2	3
Tuberculosis.....	86	96	138	112

The Mississippi Valley Medical Association.—At the recent annual meeting, held in Hot Springs, Arkansas, officers for the ensuing year were chosen as follows: President, Dr. William N. Wishard, of Indianapolis; vice-presidents, Dr. Thomas E. Holland, of Hot Springs, and Dr. Charles B. Parker, of Cleveland; secretary, Dr. Frederick C. Woodburn, of Indianapolis; treasurer, Dr. Harold N. Moyer, of Chicago. It was voted to hold the next meeting in Detroit.

The Woman's Hospital.—It is announced that land on Eighth Avenue constituting the block extending from Ninety-second to Ninety-third Street has been secured for the purpose of erecting new buildings for the hospital.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from November 18 to November 24, 1894:*

POLHEMUS, ADRIAN S., Captain and Assistant Surgeon. The leave of absence granted is changed to leave of absence on account of sickness, and is further extended to include December 26, 1894, on surgeon's certificate of disability.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending November 24, 1894:*

ROGERS, FRANKLIN, Surgeon. Ordered to the U. S. Revenue Steamer Wabash.

STONE, E. P., Passed Assistant Surgeon. Detached from the U. S. Revenue Steamer Wabash and ordered to the Naval Hospital at Boston.

BIDDLE, CLEMENT, Passed Assistant Surgeon. Detached from the Marine Recruiting Rendezvous, Philadelphia.

RICHARDS, T. W., Assistant Surgeon. Ordered to the Naval Laboratory and Department of Instruction.

Society Meetings for the Coming Week:

MONDAY, December 3d: New York Academy of Sciences (Section in Biology); German Medical Society of the City of New York; Morrisania Medical Society (private); Brooklyn Anatomical and Surgical Society (private); Corning, N. Y., Academy of Medicine; Utica, N. Y., Medical Library Association; Boston Society for Medical Observation; St. Albans, Vt., Medical Association; Providence, R. I., Medical Association; Hartford, Conn., Medical Society; South Pittsburgh, Pa., Medical Society; Chicago Medical Society.

TUESDAY, December 4th: New York Obstetrical Society (private); New York Neurological Society; Buffalo, N. Y., Medical and Surgical Association; Elmira, N. Y., Academy of Medicine; Ogdensburg, N. Y., Medical Association; Syracuse, N. Y., Academy of Medicine; Medical Societies of the Counties of Herkimer (semi-annual—Herkimer) and Saratoga (Ballston Spa), N. Y.; Hudson, N. J., County Medical Society (Jersey City); Androscoggin, Me., County Medical Association (Lewiston); Baltimore Academy of Medicine; Medical Society of the University of Maryland (Baltimore).

WEDNESDAY, December 5th: New York Academy of Medicine (Section in Public Health); Society of the Alumni of Bellevue Hospital, New York; Harlem Medical Association of the City of New York; Medical Microscopical Society of Brooklyn; Medical Society of the County of Richmond (Stapleton); Penobscot, Me., County Medical Society (Bangor); Bridgeport, Conn., Medical Association.

THURSDAY, December 6th: New York Academy of Medicine; Brooklyn Surgical Society; Society of Physicians of the Village of Canandaigua, N. Y.; Boston Medico-psychological Association; Obstetrical Society of Philadelphia; United States Naval Medical Society (Washington).

FRIDAY, December 7th: Practitioners' Society of New York (private); Baltimore Clinical Society.

SATURDAY, December 8th: Obstetrical Society of Boston (private).

Answers to Correspondents:

No. 429.—1. By the febrile reaction that follows the use of tuberculin. 2. We think it can not be obtained.

Proceedings of Societies.

THE MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Twentieth Annual Meeting, held in Hot Springs, Arkansas, on Tuesday, Wednesday, Thursday, and Friday, November 20, 21, 22, and 23, 1894.

The President, Dr. XENOPHON C. SCOTT, of Cleveland, in the Chair.

The President's Address.—After brief addresses of welcome by Governor Fishback, representing the State of Arkansas, and by the Hon. W. H. Martin, speaking for the citizens of Hot Springs, together with the reading of various reports and the disposal of certain routine matters of business, the president read his address. In it he recounted the efforts that had been made to put the association's affairs on a more satisfactory basis and to insure a large and profitable meeting, and pointed out abundant evidence that those efforts had met with a grati-

fying degree of success. The matter of "medical ethics" was touched upon incidentally, and in that connection the most notable feature of the address was an expression of regret that the American Medical Association's code of ethics discounted the holding of a patent by a physician on any invention pertaining to the practice of his profession.

The Rights and Duties of Medical Witnesses.—In a paper on this subject, W. S. KERR, Esq., of Mansfield, O., traced the distinction between testimony as to observed facts and skilled, or "expert," testimony, and indicated the course to be pursued by medical witnesses so as to avoid being compelled to testify as experts without the assurance of due compensation. It appeared from the paper that Illinois was the only State having a statutory enactment by which witnesses were under compulsion to give expert testimony without special compensation.

In the discussion, in which the chief part was taken by Dr. HAROLD N. MOYER, of Chicago, and Dr. CHARLES H. HUGHES, of St. Louis, various means of avoiding involuntary expert testimony were mentioned, and the most feasible was suggested to be that of hinting to the attorney, before the trial, that one's testimony would not be valuable to his client's cause—provided, of course, that was the truth.

Bone and Joint Tuberculosis the Future Field of Litigation against Railways was the title of a paper read by Dr. EMORY LAMPHEAR, of St. Louis. On account of the time limit, the author gave only a synopsis of his paper, the drift of which was to show that suits for damages on the grounds indicated in the title would increase in frequency in proportion as the public grew more and more aware of the importance of injuries as the remote cause of tubercular affections of the bones and joints. In many such cases litigation might be prevented by a proper statement on the part of a capable and conscientious surgeon, and the railway companies would almost always be found ready to do their part in warding it off by the voluntary payment of a reasonable sum in case the facts seemed to show a real connection as cause and effect between the injury and the subsequent disease. Several cases substantiating this position were related briefly.

Enlargement of the Heart without Valvular Disease, with Special Reference to Treatment.—This was the title of a most excellent paper by Dr. ROBERT H. BABCOCK, of Chicago, given in the form of an extemporaneous abstract. Dr. Babcock had found this form of cardiac disease more common than was generally supposed, and he made the interesting statement that he had met with it most frequently in broad-chested men. In regard to the treatment, he recommended the use of stimulants, but generally the avoidance of digitalis. When he did use digitalis, he preferred to give it in infusion.

Oxygen as a Heart Tonic was the subject of a paper by Dr. W. T. BAIRD, of Dallas, Texas. The paper consisted chiefly of clinical histories showing the striking benefit of the inhalation of oxygen in several forms of disease, especially pneumonia. This was sustained by all the gentlemen who took part in the discussion, and one of them, who advocated the extemporaneous preparation of oxygen, cited the case of a child who had inhaled about four hundred and eighty gallons of the gas in the course of seventy-two hours. So decided had the relief been in this case that the boy would awake now and then and himself apply the tube to his face.

Malarial Fever a Water-borne Disease.—Dr. WILLIAM H. DALY, of Pittsburgh, read a paper with this title, and referred to a previous publication of his in which he had maintained that malarial infection was in by far the greater number of instances contracted through the medium of water ingested by the mouth. This he thought—and his conclusions were founded upon many years' observation—was the case almost to

the entire exclusion of aerial infection. Those who believed in the paramount importance of air as a vehicle for the plasmodium inculcated the avoidance of exposure to the night air of malarious districts, but how, asked the author, could one shut out the night air; did any one imagine that by closing his windows he secured for himself an atmosphere differing in any respect, save that of temperature, from the outer air? To a great extent Dr. Daly's observations had been made upon himself and upon several fellow-members of a sportsmen's club who sought the marshes for duck-shooting every year or oftener. This had been going on for twenty years or more. During the early years of that period Dr. Daly and his companions, conforming to the prevalent opinion, had braved the night air of the marshes relying on the free use of quinine, but had drunk the marsh water unmindful of the possibility of its exerting any morbid influence. The quinine had proved only a partial and unsatisfactory safeguard. It had then occurred to the author that it would be well to try avoidance of the marsh water for drinking purposes. He and his fellow-sportsmen had soon agreed to pursue this course, and they had then found that they could expose themselves freely to the night air of the marshes with impunity and without the aid of quinine. The author extolled the value of Laveran's investigations of the cause of malarial disease, and urged their more general teaching in the schools.

Dr. HUGHES suggested that the noxious element in night air might reside in the watery vapor it contained. Dr. THOMAS HUNT STUCKY, of Louisville, thought this doubtful.

Dr. HOETON, of Midland, Texas, referred to Salisbury's early isolation of a germ considered by him to be productive of malarial disease, and to his experimental conveyance of such disease with that germ, thus anticipating Laveran's work.

Dr. MOYER related an experience, on a large scale, that had been strikingly the reverse of what Dr. Daly and his hunting companions had encountered, tending to show the innocuousness of swamp water and the pathogenic effect of night air in paludal regions.

Intestinal Indigestion.—Dr. A. P. BUCHMAN, of Fort Wayne, Ind., read a paper with this title. After giving an outline of the physiology of intestinal digestion and of its bearing on dietetics, he drew a graphic picture of the many serious diseases that had its continued derangement for their starting point.

Dr. STUCKY spoke of the practicability of tracing intestinal disease to its precise situation in the digestive tract by observing the character of the stools, and dwelt upon the good effects of systematic diet and exercise, together with the use of strychnine, in improving the tone of the muscular coat of the intestines, also of the great advantage to be gained by antiseptic flushing of the large intestine to rid it of clogging and poisonous material.

Dr. BUCHMAN employed the time allowed him for closing the discussion with the further reading of his paper, which he had had to cut short before under the rules. In this latter portion of the paper he advocated the use of "colonic baths," much after the manner suggested by Dr. Stucky.

The Abortive Treatment of Typhoid Fever.—Dr. J. E. WOODBRIDGE, of Youngstown, Ohio, read a paper entitled Typhoid Fever can be Aborted; Another Year's Work with No Death and No Failure "in Evidence." The author's previous publications on this subject, in the *Journal of the American Medical Association*, had caused this paper to be looked forward to with particular interest, chiefly, it appeared, because in one of those publications he had gone so far as to assert substantially that any physician who failed to cure typhoid fever, provided he saw the patient in the early stage of the disease, was justly open to the charge of malpractice. This had aroused

a general feeling of resentment, as was abundantly shown in the discussion. That portion of Dr. Woodbridge's present paper which he read at first under the time limitations of the rules of the meeting consisted almost wholly of clinical histories. The treatment on which he had particularly relied was by the internal administration of antiseptics.

In the discussion, in which many gentlemen took part, notably Dr. I. N. LOVE, of St. Louis, the general opinion was expressed that there was no specific treatment that could be relied on to cut short the course of typhoid fever or that furnished any guarantee of its successful issue, also that a physician might encounter several epidemics without losing a patient, but finally meet with one that would prove so fatal as to wean him from any notion he might have come to entertain that he had mastered the treatment of the disease.

Dr. WOODBRIDGE had not proceeded far in closing the discussion when he was peremptorily asked if he would describe his special treatment definitely. He answered "No," whereupon plain expressions of disapproval arose. After a little pause Dr. Woodbridge recurred to his paper and read passages from which it appeared that he relied on two mixtures of menthol, guaiacol, and several other antiseptics. It was remarked by several members that there was nothing new in the treatment, and the subject was dropped.

Ox-gall in the Treatment of Typhoid Fever.—This was the subject of a paper read by Dr. HENRY SUMMA, of St. Louis. It consisted largely of clinical histories. Together with the ordinary symptomatic treatment, the use of ox-gall had consisted in its administration in the form of an enema once or twice a day.

The paper was discussed conjointly with Dr. Woodbridge's. Dr. LOVE stated that he had observed the good results in Dr. Summa's cases.

Uranalysis in Diagnosis.—Dr. A. B. WALKER, of Canton, Ohio, read a paper in which he showed anew the importance of urinary examinations in the diagnosis of various acute and chronic diseases.

Analyses in the Diagnosis of Chronic Diseases was the title of a paper of much the same purport by Dr. PAUL PAQUIN, of St. Louis.

My Experience with Gold as a Therapeutic Agent was the title of a paper by Dr. A. M. OWEN, of Evansville, Ind. (to be published).

Toxics.—Under this brief title Dr. WILLIAM F. BARCLAY, of Pittsburgh, dealt with various pathogenic agents that might be ingested accidentally or be generated within the organism. Incidentally, he remarked that it was his opinion that bloodletting had fallen into an extreme of disuse that was to be regretted; it might often be resorted to with advantage in cases where the blood was rich and abundant, but overcharged with toxic matters, and so the emunctories be relieved.

(To be concluded.)

AMERICAN LARYNGOLOGICAL ASSOCIATION.

Sixteenth Annual Congress, held in Washington, D. C., on Wednesday, Thursday, and Friday, May 30 and 31 and June 1, 1894.

The President, Dr. D. BRYSON DELAVAN, of New York, in the Chair.

(Continued from page 666.)

Observations on Some of the Results of Cutting Operations on the Nasal Sæptum.—A paper on this subject was read by Dr. THOMAS R. FRENCH, of Brooklyn. (See page 682.)

Dr. F. H. BOSWORTH said he wished to speak on but one point—that of perforation of the nasal sæptum. He had operated in quite a number of cases, and thought perforation had no weakening effect on the cartilages of the nose. If the edges of the perforation projected into the ingoing current of air, there was liable to be erosion. If we could secure such a position, so that the perforation was in an antero-posterior line, there would be no projecting edges, and the patient would be perfectly safe from any discomfort or erosion. The hæmorrhages could usually be controlled by the use of the cautery.

Dr. JOHN O. ROE, of Rochester, said: I do not regard the perforation of the sæptum in adults as a serious accident, because the supporting structures of the nose are developed and will maintain their position. But in children, where the nasal structures are imperfectly developed and still in the process of growth, perforation of the sæptum is quite liable to cause a falling in or depression of the top of the nose, and particularly in the cartilaginous portion. In performing operations upon the sæptum the accident of perforating it will sometimes occur, particularly if great care is not exercised; but the intentional perforation of the sæptum, because it is deviated or deformed, should never be resorted to, and is, in my opinion, entirely unjustifiable. I regard it as bad surgery, for we thus resort to cutting away a deformity which we should correct. At the last meeting of this association I described the plan which I pursued in the correction of deviations of the sæptum, and also described the instruments which I had some time before devised for this purpose. The instruments which I then described I have since improved and perfected, a set of which I have brought with me for your inspection. They are, as you see, made in different sizes to fit different cases, and so arranged that all the blades fit into one handle. The screw in the handle permits the adjustment of the blades, so that the exact amount of force required can be employed, and in the employment of the cutting blades for straightening the cartilaginous portion they can be so adjusted as not to cut through the mucous membrane on one side, which, being preserved, serves the purpose of a splint to hold the fragments together until healing ensues. In the employment of these instruments the danger of perforating the sæptum during the operation of straightening it is removed, and the ease with which the operation can be performed will, I am sure, commend these instruments to you.

Dr. WILLIAM H. DALY said he was of the opinion that in the discussion of this subject perforation of the nasal sæptum should never be mentioned except to condemn it; we should endeavor to avoid this unfortunate condition. He had been of this opinion when the first paper on this subject was read twelve years ago before the American Laryngological Association. He had at that time condemned the operation as being unsurgical, and since then had found no valid reason for changing his views. The old saying, "As the twig is bent the tree is inclined," found a stubborn proof in cases of deflection of the nasal sæptum.

In his own practice he had examined many cases which had been treated by others and dismissed as cured, and he had found that after one, two, three, four, or five years, or less, there had been a measurable or full return of the deformity. He had come to the conclusion that this was due to certain habits or practices of the patient, such as lying on one side continuously while in bed, or in using the handkerchief in some peculiar manner, or by pressure on one side of the nose more than the other, etc. He believed that this class of surgery was yet in its infancy. Dr. Roe had done much to advance this line of surgery, and his instruments represented some important steps in the practical treatment of these cases. In his own practice he had obtained good results by careful attention after

the operation in preventing the return of the deformity. Dr. Daly said he had always protested against the use of the punch, for he had never seen any really good results from its use. This field of surgery was limitless, as there was scarcely a strictly symmetrical nose in existence. The speaker predicted that in the next ten years such an advance would be made in the treatment of these cases as would bring great credit and honor on the profession. Dr. Roberts, of Philadelphia, a very skillful surgeon, had advised and published an account of an operation which personally he had found to give very unsatisfactory results. True, the immediate results were good, but the deformity would return in about three months or more if the cases were not watched. In another of his cases, which had been operated upon five years previously by a very competent and skillful (now deceased) surgeon, after Dr. Roberts's method, the deformity was at present just as great as before the operation.

Dr. C. M. SHIELDS, of Richmond, said that this branch of nasal surgery seemed to him a more difficult problem than anything connected with the treatment of nasal diseases. In one case of deviated *sæptum* upon which he had operated by incision, where simple straightening might have answered, he was greatly disappointed at the condition he found on examining the patient two or three years after the operation. Now he made it a rule to tell his patients at the outset that the result was likely to be unsatisfactory, and that subsequent treatment would probably be demanded. He never used the punch except where it was absolutely necessary, as he preferred the knife. His plan was to make an incision through the *sæptum*, and use the knife in the incision with great care. His objection to the punch was that it divided the *sæptum* into small pieces. One of the methods which he had practiced was to make two parallel incisions from behind forward, and let the upper lip of the two flaps thus formed project, something after the way in which one half of a window overlaps the other half. These were united in the center, and then pressed backward. The parts usually united rapidly without suppuration. He had used this method with satisfaction for two years past.

Dr. W. E. CASSELBERRY objected to perforation of the *sæptum* on æsthetic grounds. No one should deliberately practice perforation, but when it happened accidentally he did not worry about it. He had had two cases where this had occurred. He operated for deviation of the nasal *sæptum* with excrescences. The *sæptum* in one case was duplicated and extended far on one side, the two parts lying so close together that in making the examination the probe would stop short of the actual depth of the concavity. In cutting off what he thus thought a safe amount, he passed through both thicknesses above and below. As a result, there was an antero-posterior perforation, an eighth to a quarter of an inch wide, and extending back almost an inch. The patient was greatly pleased with the result. A few erosions gave some annoyance, but they yielded to applications of the yellow oxide of mercury ointment.

He would like to dissent from the opinion that adhesions never formed except when the opposite side of the nose was wounded. He had seen adhesions in the nostrils when no operation had ever been performed. The following case, although not nasal, had convinced him of this possibility. It was a case of naso-pharyngeal fibroma, in which adhesions had formed around the tumor from the pressure on the opposing surfaces.

He had a variety of correcting instruments, but preferred to use the scalpel for correction of deviation limited to the cartilaginous *sæptum* and without excrescence.

Dr. M. J. ASCH said that he had operated in a good many

cases of the kind by the method described by him at a previous meeting of this association, and had received reports from others who had operated by this method. He had found that a good result was invariable except where the operator had been careless as to some detail either of the operation or the after-treatment. It did not suffice to merely operate and leave the *sæptum* to itself. Such an operation required two or three months of attention by the surgeon. If this was given the result would be good, and there would be no complaint of the inadequacy of the operation. It sometimes happened that an edge of the incision overlapped, though usually it was smooth; in such cases the overlapping edge was easily smoothed down by scissors or the electric trephine. In but one of his cases was there a resulting perforation, this was of a pinhole size and gave rise to occasional hæmorrhage. It persisted for some years and then healed up and gave no further trouble. In all of his cases he introduced the blunt blade of the scissors described by him in the nostril in which the convexity of the deviation existed. When it was necessary to know the exact thickness of the *sæptum*, which not infrequently happened, it could be ascertained by means of the *sæptometer*, an instrument devised for this purpose. He desired to impress the fact that in all cases of deviation of the cartilaginous nasal *sæptum* he had every reason to be satisfied with his results.

NOTE.—In response to an inquiry by Dr. French, Dr. Asch emphatically reiterated his entire satisfaction with the results obtained by his method of operating. It has been the good fortune of the secretary to observe several of Dr. Asch's cases. The results have certainly been better than those after other methods.

Dr. GLEITSMANN said that the failure to relieve the symptoms in many of these cases arose from the fact that back of the *sæptal* deformity, there is frequently an enlargement of the inferior turbinates. The latter may swell up in the air, rarefied by the *sæptal* obstruction.

He regretted that so little reference had been made to the prevention and management of adhesions. In spite of the utmost care they would frequently occur and prove very troublesome.

Dr. S. W. LANGMAID, of Boston, said he agreed with Dr. Gleitsmann with regard to adhesions. If the operation under discussion is performed, the patient should not be lost sight of until the wound is healed, or nearly so. If the patient can not be under observation for three weeks the operation should not be undertaken. Granulations follow the curetting of adhesions. If they are not destroyed they will cause fresh adhesions.

Dr. M. R. BROWN, of Chicago, spoke of the bleeding following operations on the *sæptum*. He cited a case, occurring in the practice of another physician, in which an operation had been attempted and abandoned on account of the bleeding, which, according to the description, was very active and profuse. When the speaker was called to the case the anterior and posterior nares had been plugged and the bleeding thus brought under control. The examination made at a later date confirmed the opinion as to the source of the hæmorrhage, it being found that the exostosis extended outward, and so far occluded the nares that it was almost impossible to have wounded the turbinated body.

Dr. Brown had never seen a case where the nose had fallen in, following operations on the *sæptum*. In those instances where the nose had become depressed from loss of the *sæptum*, it had been brought about by a specific condition and not by the simple removal of this partition. The contraction of the tissues following the ulceration seemed to have more effect in causing the depression than the removal of the support alone.

The speaker said that he had recently had an opportunity of examining several cases in which the septum had been entirely removed, the shape of the nose remaining the same after the operation as it had been before.

Experience had taught him that there was a period in childhood when growths on the septum are progressive. This was about the age of puberty. Such cases when operated upon would almost invariably require a second operation at a later date.

Dr. Brown thought it was seldom necessary to perforate the septum in operations on that partition. In one case, however, the deflection was such that he felt it was imperative, and made the perforation with the trephine. The relief in this case was greater than he had reason to expect.

The PRESIDENT considered it very important that all injury, both to the septum and to the parts adjacent to it, be avoided in this class of operations. It was possible that a small, round perforation, such as that made by a Blandin's punch, might not be harmful. Perforation occurring in the course of the removal of a longitudinal bending of the septum, erroneously supposed to be a spur, was not likely to result in a small, circular opening, however, but in a long, narrow slit, running parallel with the floor of the nose and unlimited in extent. In a young lady whom he had lately seen, an opening an inch and a half in its antero-posterior diameter had been made. While the effect of such a loss of tissue upon the blood-vessels of the septum might not be irremediable, the speaker regarded the division of a large number of filaments of the naso-palatine nerve as a very serious matter. In his own practice he had perforated the septum on but two occasions. The patients were both gentlemen. In the younger the accident was followed immediately by midriasis of the right eye. In both there was pronounced and long-continued nervous irritation, while the nasal obstruction was but imperfectly relieved. The same conditions had existed in the case of the young lady mentioned. He had seen other cases similar to the above, and had never failed to find that more harm had resulted than good. He therefore strongly deprecated any such procedure, and believed that instruments like the Blandin punch, if employed at all, should be used with the exercise of great judgment. He cordially indorsed the views expressed by Dr. Langmaid as to the importance of careful after-treatment. Much of the lack of success in operations upon the septum, such, for instance, as delayed recovery, failure to relieve obstruction, and the formation of adhesions, was due to lack of care in this particular. He considered it necessary to keep the patient under observation at intervals for some time after operation.

Dr. FRENCH: I agree with Dr. Casselberry that severe hæmorrhage sometimes occurs from the septum after operations upon that cartilage. I desired especially to direct attention in my paper to an avoidable cause of hæmorrhage in such operations—viz., injury to the turbinated bodies. Hæmorrhage from the septum can not, of course, be prevented, but such safeguards should be employed as will make injury to the turbinates next to impossible. Dr. Casselberry contends that it is not necessary that there should be a solution of continuity of both surfaces of opposing mucous membranes to permit them to become adherent, and cites a case in which he had seen a naso-pharyngeal polypus adherent to the mucous membrane.

Is it not reasonable to suppose that the friction resulting from the movement of the polypus caused abrasion of both surfaces, which afterward adhered to each other? I wish very heartily to indorse all that the president and Dr. Langmaid have said regarding the necessity for care and observation after any of the minor operations done within the nasal passages. Were the need of such care more generally appreciated, I feel

certain that the results obtained from such operative procedures would be far more satisfactory to both patient and operator.

It seems to me that this discussion has shown that while an unnecessary perforation is always to be most carefully avoided, with proper care the occurrence of a perforation need not be greatly dreaded.

Singers' Nodes.—Dr. F. I. KNIGHT, of Boston, read a paper on this subject. (See page 685.)

Dr. GLEITSMANN had used the galvano-cautery in these conditions, and had been well satisfied with the result. He also advocated chromic and trichloroacetic acid.

Dr. S. W. LANGMAID said he believed destruction of the nodule was the proper procedure. It was to be regarded as a tumor. There was great danger of recurring chondritis in these cases, for which rest and topical medication were the remedies. In his opinion unskillful use of the voice and prolonged vocal efforts predisposed to this condition. He had seen these nodules on the vocal cords of singers whose voices were still beautiful, but in such cases the nodule did not extend to the free border of the cord. If it did, the singing voice was necessarily injured or destroyed. He had never seen the nodule removed except by forceps.

Dr. T. M. MURRAY said he had seen four cases of singers' nodes. The first was in Vienna, and was treated by Professor Stoerk. The result was good. The next time he saw such a case he tried Stoerk's method himself, and was much pleased with the result. The operation consisted in simply touching the spot once with nitrate of silver fused upon a silver laryngeal probe. The patient should not speak once for twenty-four hours after the application. One of his cases was a child of seven years. One, an actress whom he had treated in this manner, regained her voice completely.

Dr. J. WRIGHT said he could indorse the statement made by Dr. Langmaid concerning chondritis. In some cases the cords looked as if they were powdered at their middle. In these cases the nodule disappeared by an application of nitrate of silver or other metallic astringent. In one of his cases the condition disappeared spontaneously. He had never used the guillotine and forceps, and he thought in the majority of cases a mild solution of nitrate of silver would suffice. In exceptional instances there seemed to be a diathesis, particularly among phthisical patients. He would like to hear from others as to whether there usually was any association of these conditions.

Dr. FRENCH said that he had had an opportunity to treat quite a number of cases of the disease which Dr. Knight so well described, and had been impressed with the value of local applications of astringent and alterative remedies in those cases in which he had been permitted to continue them for a considerable length of time. The first opportunity he had had to test their value under such conditions was in the case of a young woman on the edge of whose left vocal band several nodules developed as the result of serious abuse of the voice. Her voice was so powerful, its quality so good, and she was so intelligent and enthusiastic regarding vocal music that the leader of the volunteer choir to which she belonged took advantage of her good nature and used her voice out of all reason to show those less gifted how the music ought to be sung. In the course of a year her voice began to grow hoarse, and in a short time afterward it broke down completely and she placed herself under my care for treatment. The left vocal band was found to be much thickened and congested, and upon its edge were two flattened nodular masses of considerable size, which may be appreciated by inspecting this photograph taken of her larynx at the time treatment was begun.

The changes were rung on weak solutions of the various

astringent and alterative remedies, which were applied on an average of three times a week for two years and a half, when the vocal band regained its normal appearance and her singing voice was completely restored. She was now singing in a quartet choir, and her friends thought that her voice was as brilliant in quality as it ever had been.

Surgical measures were but seldom indicated in these cases. Certainly in those in which the vocal band was thickened such measures could be of no avail. The existence of a condition which would be benefited by the use of the little guillotine described by Dr. Rice must be very rare.

In his opinion there was no relation between tuberculosis and the disease under consideration.

Dr. W. K. SIMPSON, of New York, said the development of singers' nodes depended not so much on the wrong method of using the voice as on its immoderate use by whatever method. He did not think they were necessarily tubercular, but a tubercular subject would be more disposed to their formation. They sometimes began by slight hæmorrhages which became organized. The main point of treatment was rest.

The PRESIDENT said he had never found any connection between the condition under discussion and the tubercular diathesis. Surgical treatment was appropriate only for those cases in which the nodes were of considerable size. He had treated many of these cases by local applications, and had obtained as good results as from surgical measures. One such patient had been under his observation for ten years. In her there were nodes in the middle of both vocal bands. She received local treatment for a year and a half, and was then put under the care of a good musical instructor. The nodes never entirely disappeared, but she had steadily improved in her singing, and had been promoted to one of the best professional positions in the city, singing acceptably in church, concert, and oratorio.

Dr. F. I. KNIGHT said he would like to ask Dr. Murray if the solid stick of nitrate of silver were used for its destructive effect or to stimulate absorption.

Dr. MURRAY replied that it was his impression that it had been used to stimulate absorption.

Dr. KNIGHT said that if he desired to destroy tissue he would use caustic potash. He had never seen any evidence of the tubercular diathesis in any of his cases. He was sorry that he had failed to elicit any information in regard to the permanent effect of surgical operation on these nodes upon the voice.

(To be continued.)

Book Notices.

BOOKS, ETC., RECEIVED.

A Treatise of the Diseases of the Ear, including the Anatomy and Physiology of the Organ, together with the Treatment of the Affections of the Nose and Pharynx which Conduce to Aural Disease. By T. Mark Hovell, F. R. C. S. Edin., M. R. C. S. Eng., Aural Surgeon to the London Hospital, etc. London: J. and A. Churchill, 1894. Pp. xxiv+720. [Price, 18s.]

Fibroid Diseases of the Lung, including Fibroid Phthisis. By Sir Andrew Clark, Bart., M. D., LL. D., F. R. S., Late President of the Royal College of Physicians, London, etc.; W. J. Hadley, M. D. (Dur.), M. R. C. P., Assistant Physician to the London Hospital, etc., and Arnold Chaplin, M. D. (Cantab.), M. R. C. P., Assistant Physician to the City of London Hospital for Diseases of the Chest, etc. With Tables and Eight Plates in

Colors. London: Charles Griffin & Co., Limited, 1894. Pp. viii+199. [Price, 21s.]

Local Anæsthetics and Cocaine Analgesia; their Uses and Limitations. By Thomas H. Manley, A. M., M. D., member of the New York Academy of Medicine, etc. St. Louis: J. H. Chambers & Co., 1894. Pp. xi+11 to 183.

Trephining in Three Cases of Epilepsy; Two of the Jacksonian Variety; One due to Old Meningeal Hæmorrhage; Improvement. By J. T. Eskridge, M. D. [Reprinted from the *Medical News*.]

Some Statistics of Diabetes Mellitus. By N. S. Davis, Jr., M. D. (Read before the Annual Meeting of the Illinois State Medical Society.)

Cauterization of the Nares, and Accidents that may Follow. By E. Fletcher Ingals, M. D. (Read before the Annual Meeting of the Illinois State Medical Society.)

Electricity in Diagnosis and Prognosis of Affections of the Peripheral Nerves. By William M. Leszynsky, M. D. [Reprinted from the *Medical Record*.]

A Comparative Study of the Different Methods of Treating Posterior Displacements of the Uterus, both Mechanical and Operative. By Leonard S. Rau, M. D. [Reprinted from the *Post-Graduate*.]

Pregnancy after Ventral Fixation of the Uterus. A Report of Four Cases. By George M. Edebohls, M. D. [Reprinted from the *Transactions of the New York Obstetrical Society*.]

Sleep, Sleeplessness, and Hypnotics. By S. V. Clevenger, M. D. [Reprinted from the *Journal of the American Medical Association*.]

The Treatment of Anal Fissure, or Irritable Ulcer of the Rectum. By Lewis H. Adler, Jr., M. D. [Reprinted from the *American Lancet*.]

An Address on Appendicitis. By J. William White, M. D. [Reprinted from the *Therapeutic Gazette*.]

The Treatment of Empyema, with Selected Cases. By J. William White, M. D., and Alfred C. Wood, M. D. [Reprinted from the *Therapeutic Gazette*.]

Experience in Cholelithiasis, with and without Icterus. By Professor Riedel, of Jena. [Review from the *American Journal of the Medical Sciences*.]

The Operative Treatment of Fistula in Ano. By Lewis H. Adler, Jr., M. D. [Reprinted from the *International Medical Magazine*.]

Some Remarks on the Address delivered to the American Medico-psychological Association, by S. Weir Mitchell, M. D., May 16, 1894. By Walter Channing, M. D. [Reprinted from the *American Journal of Insanity*.]

Beiträge zur Biologie des Gonococcus und zur pathologischen Anatomie des gonorrhöischen Processes. Von Dr. Ernest Finger, Dr. A. Ghon und Dr. F. Schlagenhauder. [Sonderabdruck aus der *Archiv für Dermatologie und Syphilis*.]

Report on Typhoid Fever in the District of Columbia, submitted by the Medical Society of the District of Columbia to the Committee on the District of Columbia of the United States House of Representatives, June 14, 1894.

Transactions of the American Ophthalmological Society, Thirtieth Annual Meeting. Washington, D. C., 1894.

Observations upon the Medical Department of the British Army, made in 1891. Abridged from an Official Report. By Brevet Lieutenant-Colonel Alfred A. Woodhull, U. S. A. [Reprinted from the *Transactions of the Association of Military Surgeons of the United States*.]

Handbuch der physiologischen Optik. Von H. von Helmholtz. Zweite umgearbeitete Auflage. Mit zahlreichen in den Text eingedruckten Holzschnitten. Achte Lieferung. Hamburg und Leipzig: Leopold Voss, 1894. Pp. 561 to 640.

Reports on the Progress of Medicine.

PRACTICAL HYGIENE AND SANITARY SCIENCE.

By C. GILMAN CURRIER, M.D.,
ASSOCIATE OF THE AMERICAN SOCIETY OF CIVIL ENGINEERS.

The Influence of Tropical Climates upon residents who are natives of temperate regions is considered by Moore in the *Sanitary Record* (September 22, 1894). The depressing conditions may be summarized as (1) the heat of the climate, with consequent paucity of oxidation within the body, lessened urination, and the accumulation (in the blood) of effete material which should be passed as waste; (2) the hotter the climate the greater is the liability to chill; (3) the prevalence of a scorbutic taint, whether latent or manifest; (4) want of sleep; (5) malaria.

The deleterious influence of a tropical climate may be altogether prevented, or at least reduced to a minimum, by a great moderation in both eating and drinking; by avoiding chill in every possible manner, and recollecting that chill is most likely after exposure to heat; by eating a sufficiency of fresh vegetables; by securing enough sleep; by daily use of arsenic or quinine during the malarious seasons of the year, not so much for the prophylactic as for the tonic value of these drugs.

High Buildings Unhealthful.—Mr. George B. Post, in recent discussions (*Architecture and Building*, October 27, 1894, p. 204), has reiterated his former expressions of opinion that, when many high buildings exist in a city, the effect is architecturally (and sanitarily) deplorable. Not only do they shut out much light and prevent free circulation of fresh air in streets and in other buildings, but they possess inherent and too-frequently-occurring structural defects. It is probable that the evil resulting from the presence of numbers of such excessively tall, tower-like buildings will sooner or later restrict and mitigate itself, but it would be much better if such nuisances were now limited by law. Leaving out of the question all consideration of their permanent sanitary harmfulness or of their injurious influence upon the value of real estate, such very high buildings seem likely to prove not very durable. However well constructed the building, the danger of rusting of the iron and steel used is always an actual one, and proves in some cases a very serious one. Some of these buildings are consequently in a dangerous condition, owing to this and other architectural defects. It is not possible to protect a great system of steel of iron construction so that it will not be assailed by rust, even if we use paint or asphaltum. In the *World* building (three hundred and fifty feet high) and in other tall structures built by Mr. Post he has never dared to use a cage incased in mason work. He has always built the cage detached inside, and anchored the walls to it so that the cage could be examined, and in case of corrosion could be painted or repaired. Cast iron has the one advantage over wrought iron or steel that it is less liable to corrosion. Yet it is more apt to be defective than steel or wrought iron, and hence requires more careful and thorough inspection. Nevertheless, it seems safer than the steel cage. Only round (not square) columns are to be used, and they are to be employed only after careful preliminary inspection.

Improved Dwellings for the London Poor.—An interesting article on this subject, by Dr. H. D. Chapin, appeared in the *New York Times* of September 2, 1894. It enumerated the principal attempts that have proved both financial and philanthropic successes. Not only do the Peabody buildings, the Octavia Hill tenements, and numerous others of the various British improved dwellings for the poor, pay good rates of interest on the very large capital now invested, but they have unquestionably improved public health by restricting the diseases that follow on overcrowding, filth, and bad sanitation. The vital

statistical returns are considerably better from the tenants of these abodes than from the inferior tenements which they were substituted for. Certain features of these dwellings could be copied advantageously by Americans who study the question for practical purposes. The London County Council has achieved much good by its extensive and radical measures, among which should be especially mentioned a successful Municipal Lodging House that has been in operation for eighteen months. It charges sixpence nightly, which is a trifle above the actual cost. The establishment does not appear to collect tramps or dissolute people, and it does not foster disease.

Sewage Disposal by Chemical Treatment, as practiced at Chautauqua, N. Y., is briefly described by Landreth in an instructive illustrated article, giving details of construction, in the *Transactions of the American Society of Civil Engineers*, July, 1894. Prior to 1893 the sanitary arrangements were crude and unsatisfactory. For the three months which constitute the season of this summer resort, it formerly cost \$2,000 to dispose of its refuse. The average population was probably about four thousand—varying from three thousand to seven thousand. The sewage was quite concentrated. Exclusive of the cost of land, the total cost of the works was \$16,500. For the ninety-two days of the season the operating expenses were \$6.30 a day, to which should be added the interest charge on the cost of the plant. Of the daily outlay, \$4.20 was for labor, 40 cents for fuel, oil, and waste, while chemicals, including what was used for experiments, cost \$1.70. There were added to the crude sewage daily one barrel of lime, costing 83 cents (0.416 cent a pound); thirty-five pounds of alum, 75 cents; three pounds of copperas, 12 cents. The total solids were reduced from 117 to 23.6 parts in 100,000; mineral matter, from 59.2 to 14.4; organic matter, from 57.8 to 9.2; free ammonia, from 2.428 to 1.3558; albuminoid ammonia, from 2.088 to .4856.

The phosphates, color, and odor were wholly removed, and the effluent was declared wholly inoffensive. Satisfactory results from chemical treatment come only when the tanks are of good design, and when sewage and chemicals are carefully gauged, properly proportioned, and thoroughly mixed.

Self-purification of Sewage-contaminated River Water.—Heider (*Oester. Sanitätswesen*, 1893; abstract in *Hyg. Rundschau*, June 1, 1894, p. 505) made a thorough practical study of the question as affecting Vienna and the water of the Danube below the city. Although there was not complete commingling for several miles after the sewage inflow, yet, as soon as the sewage was diluted somewhat more than seven times, the chemical difference between the river water above and that below the contaminating inflow was exceedingly small. Yet the bacteria remained several times as large for miles down stream after the introduction of the sewage water. Muscle tissue of meat (stained by bile) was found after the water had flowed for twenty-five miles (Hainburg). The current of the river is, say, from four to seven miles an hour. Gruber and von Kerner have shown that cholera germs can remain alive for from five to seven days in the river water, as also in the Vienna aqueduct water. Hence the self-purification there is a matter of dilution, and, as elsewhere, should not be relied upon when epidemics of water-borne infectious disease are present. The various pupils of Pettenkofer, who studied the Isar water at Munich, consider that self-purification within twenty miles was there more reliable and certain. Fraenkel, an expert bacteriologist, has recently found that the Lahn purified itself speedily after the sewage of Marburg entered it. (See *Vierteljahrsschrift f. gerichtl. Med. u. öff. Sanitätswesen*, 3. Folge, vii, 2; also *Annales de l'Institut Pasteur*, pp. 65 and 178, 1894.)

Lead in Water Supplies (*Brit. Med. Jour.*, June 23, 1894, p. 1372).—At Dessau, Sheffield, and elsewhere it is found that

filtration through animal charcoal is very valuable as a means of removing the greater portion of any lead suspended or dissolved in the water. Waters having an acid reaction are the ones which act most powerfully on lead, especially when at the same time they are under high pressure. Therefore treatment with powdered chalk or lime previous to the distribution lessens the likelihood of lead being present. Hardness of the water is not thereby increased by more than one degree at most. Individuals employing such filters must attend well to them and renovate them from time to time.

The Bacteriology of Lake Ontario Water.—Shuttleworth (*Engineering News*, October 4, 1894), testing near Toronto, reports that the normal number of bacteria to the cubic centimetre in the parts of the lake two or more miles from shore is about one hundred. It was observed that, as in other lakes which are not violently disturbed, the least number of bacteria is found somewhere between the top and the bottom. Because of sedimentation, the largest number is found near the bottom. The best position for the new (Toronto) intake was decided to be twenty feet from the bottom. The number of bacteria was, as elsewhere, larger in the cold than in the warm seasons of the year.

Continuous vs. Intermittent Filtration of Merrimac River Water.—Fuller (*Engineering News*, October 4, 1894), speaking from the results of the Lawrence experiments, says that during midsummer—the period of greatest bacterial activity within the filters, and also the time when the amount of free oxygen is least—intermittent filtration gives rather better results than come from the use of continuously acting filters; but these latter, by reason of their being more protected from the effect of freezing weather, are somewhat preferable during midwinter, when the river water is saturated with oxygen. It is absolutely essential with sewage, and also at times with certain waters, that the pores of the filter be charged with oxygen from time to time.

During 1893 it was found that an average of 98.54 per cent. of the bacteria present in the river water were removed by the filtration. Of those that got through (or appeared in the filtered water), the majority belonged to the most hardy forms of water bacteria, and from one seventh to one fourth of them were present in the very resistant form of spores. When typhoid and other faecal bacilli were applied, they could get through, but only in much more limited numbers than ordinary water varieties. (See also the *Twenty-fifth Annual Report of the Massachusetts State Board of Health*.)

Filter Beds and Mechanical Filters on a Large Scale. **Comparative Cost** (see report of City Engineer Shedd, of Providence, and the *Engineering News*, pp. 55 and 133, July 19 and Aug. 16, 23, 30, 1894).—After considerable experimenting and deliberation, decision was made in favor of the introduction of a set of proprietary mechanical filters for the purpose of purifying Pawtuxet River water in sufficient quantity to supply the city of Providence, R. I. It was maintained that these filters were not only fully as effective as large sand filter beds well managed and constructed after the approved German, English, and Massachusetts models, but also less expensive. Yet when it came to precise figuring on a definite, guaranteed quantity of water, the proprietary concern set the estimate of cost so high that the slow filtration plant was shown to be two sevenths cheaper, while its operation would probably cost "less than a third of the estimated cost of chemicals alone for the mechanical plant." The prospect of annoying interference on the part of litigants disputing over the right to use alum and iron salts as coagulants probably influenced the final decision somewhat, which was for an open sand filter bed.

Responsible contractors offered to construct six separate sand filter beds of over an acre of sand surface each, all com-

plete, for \$200,000. While the Lawrence (Mass.) beds cost a little less than this, the Poughkeepsie beds (under unusual conditions) cost over three times as much. Foreign beds cost more than the Providence estimate, yet, owing to unlike conditions, foreign figures are not of much value here, except perhaps for the point that covered beds cost about fifty per cent. more than the open ones.

The Hamburg plant, the newest and best European one, cost about \$30,500 an acre. The operating expense is about five dollars for every million United States gallons of filtered water, all expenses being included excepting interest on cost of plant.

Bread and Bacteria.—Does baking always sterilize a loaf? Walsh and Waldo (*Brit. Med. Jour.*, Aug. 18, 1894, p. 355, also p. 786) made gelatin cultures from the center of a number of loaves of London bread (recently baked) and found therein thirteen different species of micro-organisms. The average maximum temperature reached by the center of a quartern loaf in the oven is from 163.4° to 186.4° F., and of a half quartern loaf is from 186.8° to 203° F. [These figures are much below those derived from studies of the best Continental and American bread, and they illustrate the importance of thorough baking.] Reasoning by analogy, Walsh and Waldo infer that disease-producing organisms can remain alive in the interior of a baked loaf. Many cases of choleraic diarrhoea and similar troubles seem to some to be traceable only to deteriorated or bad bread. Hence moist, sour loaves should be rejected. Probably flour deteriorates from the moment it is ground.

Balland and Masson (*Semaine médicale*, 1893, No. 70) found that French bread was sterile on coming from the oven. It ought to be said that the English loaves are apt to be bulky and poorly baked, as is also the case with our ordinary American bread. Properly baked bread is free from disease germs.

Sterilized Milk, its Preparation and Value for Infants.—Flügge, in a lengthy and rather polemic article (*Ztschr. f. Hyg.*, xvii, 272, June, 1894), reviews the known facts and adds some new points of theoretical and practical value. Moderate heating, even if only Pasteurizing (the milk being kept for thirty minutes at 158° F.), destroys the bacilli of tuberculosis, diphtheria, typhoid, and cholera. Yet neither this nor ordinary "sterilizing" kills the numerous bacteria that cause milk to spoil. Of these the most harmful to sucklings seem to be bacilli whose very resistant spores render it necessary to steam milk two to six hours in order to effect actual (complete) sterilization.

The acute intestinal disease called cholera infantum, and marked by rapid loss of water from the body, may fairly be considered to be in the main due to food (milk) abounding in these bacteria. Defective regulation of the body heat is also a factor. Healthy breast milk is unquestionably the best food for babes. Cow's milk and artificial foods are very apt to contain enough of the harmful bacteria to cause bowel disorders. Carefully obtained statistics show that among infants suckled at healthy breasts only a twentieth as large a proportion die of intestinal catarrh as among babes artificially fed. No mere difference of environment can explain this immense disproportion.

Admitting that bacteria, increasing enormously in the milk because of warm weather, cause the summer prevalence of intestinal diseases among artificially nourished infants, it is important to know more of these micro-organisms most potent for harm. Even a moment of heating the milk to 200° F. destroys all lactic-acid bacteria, the proteus varieties, most of the coli commune sorts, and some others. Among the kinds surviving this brief heating we distinguish two classes: 1. The obligatory anaerobes, which decompose milk strongly and have tolerably resistant spores. 2. The aerobes or facultative anaerobes which belong to the group of the so-called hay or potato bacilli

and which here may best be described as peptonizing milk bacteria with very resistant spores. It is this latter kind that more than other milk bacteria, tend to cause intestinal disease in babes. The very common anaerobic *Bacillus butyricus* is much less harmful.

Peptonizing bacteria increase rapidly when introduced into sterile milk kept fairly warm. Under a temperature of 95° F. from one to five days suffice to develop a transparent zone under the cream layer and over the unchanged milk. With some bacteria the entire casein of the milk disappears and all of the milk under the cream layer has become a clear, transparent fluid. It has long been known that this change is due to a peptonizing of the casein, and this is brought about by various bacteria, which act with varying energy. Accompanying this process there is developed a bitter, rough taste, such as occurs with all peptone. Thirdly, there almost always is produced at the same time a rennet-like, coagulative ferment, the amount of which varies greatly according to the variety of bacteria acting. Some kinds also produce a slight quantity of acid, which causes a very gradual, exceedingly fine, flaky coagulation of the not yet peptonized casein. These bacteria are not wholly obligatory aerobes, and most of them are only slightly slowed in their growth when air is shut out. To the untrained eye milk may seem wholly normal and unchanged, even though such bacteria have been developing in it for days. The change in taste is only slight. Hence people may thoughtlessly give such milk to infants, although millions of bacteria be present. The macroscopic determination of a milk's freshness or purity is unreliable.

The peptone produced in such changed milk is the most common cause of intestinal derangement. Yet there are often other harmful products, notably the toxines. Of twelve kinds of peptonizing bacteria studied in Flügge's laboratory, nine showed no toxine production. Three varieties produced poisons that caused serious diarrhoeal symptoms and even death in experimental feeding to young dogs.

To obviate the effects of such bacteria, sterilization of the milk is resorted to. Heat is the only means to use, since babes are injuriously affected by the regular administration of adequate chemicals. We aim at either (1) total sterilization before sale; (2) partial sterilization before sale; or (3) partial sterilization after purchase by the consumer. Flügge found some thin, slender bacilli of milk so resistant that six or seven hours of heating at 212° F. were needed in order to sterilize the milk completely. Yet long heating darkens the milk, deteriorates its taste, and precipitates some of the albumins. Hence it injures the value of the milk. Intermittent sterilization is more effective, but is not often practicable outside of laboratories. Of the very few concerns that produce perfectly sterile milk, Flügge instances especially the Waren (Mecklenburg) establishment. The milk is delivered in air-tight tin boxes. These are completely full, and therefore no butter is produced by the churning resulting from transportation. Not till after two years of keeping is as much as a half per cent. of the fat separated out of the cream. Such excellent milk is necessarily expensive. Although extreme cleanliness in feeding and milking renders milk so pure that heating for less than an hour usually sterilizes it completely, the expense of such care is considerable. The masses have to be supplied with cheap milk.

Commercial partially sterilized milk is "a wholly uncertain and dangerous preparation," says Flügge. The good repute that it enjoys among physicians and the laity is unmerited—nay, even harmful. A reform is needed in the method of preparing it. Partially sterilized milk must not be allowed to become warm or remain so after the sterilizing heat has ceased. Until just before use it must at all times and constantly be kept

below 65° F. Labels also should say: "Heated milk, not germ-free. Must be kept below 65° F., or consumed within twelve hours." Dilution and sugaring, as is advisable for young babes, should be done to the milk before it is heated, and the little bottles should be such that they can be directly used as nursing bottles. This last remark is especially meant for the consideration of charitable distributors among the poor. The importance of continuous cool storage and prompt use must be reiterated to them. It is best that they be taught to sterilize milk at home.

Pasteurizing is best effected by the apparatus devised by Bitter. (See *Ztschr. f. Hyg.*, viii, 240.) For thirty minutes the milk is heated to 158° or 160° F., then rapidly cooled. Cooler and cans are sterilized beforehand by steam. Apparatuses working *continuously* are bad. Pasteurizing is excellent, except that it does not afford sucklings a surety of immunity against bowel disorders.

Partial sterilizing of milk at home is not expected to be complete. Nor will the milk keep longer than twelve hours without reheating, unless it is kept at a temperature below 71° F. Very important is it that the cooked milk be cooled as rapidly as possible. Ordinarily this requires several hours. Intelligent artificial cooling aids greatly, and is most important when the milk has become cooled to 130° F. and until it reaches 70° F.

We must particularly guard against all entrance of new bacteria, of the kinds that have been destroyed by heat and which increase rapidly in milk not kept at as low a temperature as 53° F. Hence, all pouring about of milk, use of unclean vessels, subsequent application of a cover (so as to allow many bacteria to enter with the water of condensation) should be avoided. There is very little danger of any germs entering with the air. If of two bottles of sterilized milk one remains uncovered and the other be covered, and all conditions are equal, little, if any, contamination will occur in either.

Of course, nursing bottles, nipples, etc., must be kept clean, sterile, and cool.

As for the length of time needed for heating, Flügge declares that if bottles be well cleaned and sterile beforehand it matters little whether milk be steamed from five to ten minutes or for forty-five minutes. Heating the milk for ten minutes in a rather open vessel causes evaporation of about a tenth of the water of the milk; and so water should be added preliminarily to compensate for this loss.

Heubner (*Berliner klin. Woch.*, September 10 and 17, 1894) reaffirms, from his great experience, the familiar truth that even though the surroundings be of the most poverty-stricken and miserable, "mother's milk" is better for babes than the use of cow's milk. The latter is very likely to cause disturbances of varying severity, beginning as a rule with digestive disorders manifested by the presence of more frequent thin, greenish stools. Similar symptoms may, it is true, occur in breast-fed babes; but with them the growth and development are not therewith arrested as is the case with bottle-fed infants, who at once stop increasing in weight when the disorder begins. The causes are as yet only unsatisfactorily explained. A litre of milk has a caloric value of nearly seven hundred calories, cow's milk being about four per cent. inferior, in this respect, to woman's milk. Chemically, cow's milk is somewhat inferior in nutritive value to human milk, except in the so-called plastic elements. Franz Hoffmann (of Leipsic) from recent careful tests finds that, from the third week after parturition the percentage composition is:

	Albumin.	Fat.	Sugar.	Ash.
Woman's milk.....	1.03	4.07	7.03	0.21
Cow's milk.....	3.50	3.50	5.00	0.70

It has long been observed that bottle-fed babes regurgitate much thicker and more voluminous curds than are produced in the stomachs of breast-fed nurslings. Attention was also called to the fact that the casein of cow's milk is of inferior digestibility. Biedert (1869) made elaborate and revolutionizing studies on the subject, showing that the albumin composition of the two kinds of milk was different. He introduced a system of extreme dilution. Yet Heubner considers that clinical experience does not support these doctrines of Biedert. While, for infant-feeding, the digestibility of cow's milk is improved if we dilute it by adding one part of pure water to two parts of good milk, that is the limit. To this 12.3 per cent. of milk sugar is added. Although such diluted milk has perhaps twice as large a proportion of albumin as human milk, Heubner's great practical experience enables him to affirm that this moderately diluted milk agrees with all sorts of infants, whether they be sick or well. The deficiency of fat in ordinary diluted milk is at least as important a factor in the bad results of ordinary bottle feeding as is the excess of casein.

Autopsies upon babes that have died from various causes show that, where the alimentary tract is in a normal condition, the casein masses are chiefly softened and digested in the stomach, and the process is continued in the duodenum and upper bowel; while in from four fifths to six sevenths of the cases the casein masses are not found at all below the ileum. But they are found imperfectly digested much further down in the bowel in cases of digestive disturbance. This is in the main probably an effect rather than the cause of the disease. Still the casein lumps in the lower bowel may fairly be regarded as a presumable source of harm, since their albuminous composition favors the formation of enormous quantities of bacteria and nitrogenous decomposition products of more or less poisonous quality. The results of the Soxhlet process are very satisfactory.

Spinal Curvature in School Children.—According to Krug (*Jahrbuch f. Kinderheilkunde u. phys. Erziehung*, xxxvii, 2), who studied fourteen hundred and eighteen children (the number of each sex being nearly the same), this occurs in from one fourth to one third of all scholars. The cause is faulty (oblique and twisted) position while at work. In Krug's cases it was slightly more common in boys than in girls. The tendency increases till the thirteenth year. The most common was a slight curvature to the left, to the average extent of a third of an inch. The most frequent location was behind the breast, next in order were the lumbar cases, lastly the cervical ones.

Mental Overwork in School Children.—Kraepelin and Altschul (*Neue Heidelberger Jahrbücher*, Bd. iv, Heft 1; *Prager med. Woch.*, Aug. 2, 1894; *Wiener med. Woch.*, 1894, several numbers) have discussed this subject quite elaborately and agree that—especially for the youngest scholars—less work and shorter hours should be the rule. While all may not accord with Kraepelin in valuing as highly the prolonged, monotonous, and measured test addition of figures in specially prepared books as a mental gauge, most of his practical deductions will find approval. He considers that even twelve-year-old scholars show evidences of beginning weariness if simple, steady school work has lasted for only a quarter of an hour. Hence instruction lasting through several hours must produce complete lack of mental receptivity. Nature helps out the child by means of the "safety-valve" of inattention. Physical exercises are actually recreation only when kept within narrow limits. It can be experimentally shown that in adults a simple walk of more than an hour lowers the mental productivity. So physical over-exertion should not be allowed to interfere with school work. Kraepelin and Altschul believe that all school children are

worked beyond the limit of their capacity for complete attentiveness and mental receptivity. For the very young the usual hours of teaching need to be abbreviated and divided, an hour being given for the purpose, after a liberal breakfast. Then a second hour may come after the noon meal. As little work as possible should be imposed at home. The mere perfunctory committing of whatever is taught, without the intelligent mental appropriation of it, is an actual impediment to the higher intellectual culture. It is more important that children learn well than that they are taught much.

The Plague, according to Yersin (*Comptes rendus de l'Académie des sciences*, tome cxix, No. 5, July 30, 1894), is presumably caused by small, short bacteria with rounded ends, that do not stain by Gram's method, but which are readily colored by gentian-violet. Unlike Kitasato, Yersin rarely found these in the blood (taken from the finger). They were found exceedingly abundant in the bubonic swellings of the lymphatic glands. These bacteria were easily cultivable in nutrient gelatin, showing a white, even growth. Rats, mice, and other animals are sensitive to and can carry the disease.

In the *Lancet* (August 18, 1894) are some cuts illustrating the appearance of these bacilli. Kitasato and Aoyama are said to have found slender, short bacilli in the blood and various internal organs of plague patients. All these bacteriologists are experts, and it remains to be seen if all prove to have isolated the same micro-organism. In the *Lancet* for August 25th Kitasato speaks of the bacilli as capsulated, the poles staining more deeply with aniline dyes (best with methyl blue) than the remainder of the bacilli. So they resemble the bacilli of chicken cholera. The number found in a given case varied greatly. The tissues near the glandular swellings were "between black and red" in color, and were infiltrated with a gelatinous exudation. The spleen was enlarged. The bacilli seem feebly resistant to heat. They succumb to drying for four days, and direct sunlight kills them in four hours. They perished also on exposure to one per-cent. solutions of carbolic acid or quicklime. Uncleanliness and unsanitary surroundings are potent factors in causing the disease, which must be quite communicable, since Dr. Aoyama, the associate of Kitasato, acquired it.

Paronychia on the Hands of Fishermen of the North Atlantic is very common and troublesome. It occurs especially among line fishers and conspicuously where fish that are somewhat decomposed are used for bait. Staphylococci of suppuration are usually present. Studying some cases that arose among sardine packers (a class ordinarily exempt) from contact with fish that had become reddened by reason of the development of peculiar bacteria in them, Dr. Saint-Sévrin (*Annales de l'Institut Pasteur*, 1894, p. 182) found not only ordinary microbes of suppuration, but also two varieties of fish-putrefactive bacteria, one of which caused the red color. He considers that putrefactive bacteria from fish can unquestionably cause paronychia.

Immunity and Immunization were tersely and well discussed by Buchner at the Budapest Congress (*Münchener med. Woch.*, Sept. 11 and 18, 1894). Summarizing, he said that the natural capacity of resistance against infection (so-called "natural immunity") depends on essentially different conditions and causes from the artificial or acquired immunity. They are accordingly wholly different and must be considered and investigated separately, although they can both be operative at the same time in the same individual.

The natural capacity of resistance rests, on the one hand, upon the bactericidal potency of certain fluid constituents of the organism (the so-called alexins); on the other hand, on inherited insusceptibility of the tissues and cells of the body against particular bacterial poisons. This natural resistance

can not, as a rule, be imparted to other organisms by means of the blood.

Leucocytes play an important part in the natural self-defense of the organism. Yet this is because they secrete certain soluble substances which produce the beneficial effects, and it is not through any phagocytic action, phagocytosis being only a secondary phenomenon.

Artificially induced (or "acquired") immunity depends on the presence of modified, apharmactic (*entgiftet*) specific bacterial products—the so-called *antitoxines*, either in the blood or in other tissues of the body, or in both. The antitoxines, and with them the artificially induced immunity, can be carried in and with the blood and the milk.

The action of antitoxines does not consist in the direct destruction of specific bacterial poisons when the two are brought into contact. It should rather be considered as developing only within the organism through its own instrumentality, in that a lessening (on the part of the living tissues of the organism) of the specific susceptibility to the poison is produced. Thereby the individual is rendered insusceptible and capable of resistance against that particular poison.

Pleomorphism of Cholera Germs.—Like Metschnikoff (*Annales de l'Institut Pasteur*, May, 1894), several competent observers have of late renewed the assertion that the comma bacillus is not the only form which the causative micro-organism of this disease may assume. Wiltshur (*Contrib. f. Bakt. u. Paras.*, Aug. 11, 1894, p. 158) sketches graphically the history of the comma bacillus (*vibrio*), and the many criticisms made upon Koch's dogma during the decade since he discovered this bacillus in Egypt and India. The denials of its diagnostic value and the fact that in some cases of genuine cholera other bacteria have been found, while the vibrios of Koch were absent—all this is reconcilable with the fact that these vibrios are the sole cause of cholera. The truth is that this micro-organism is likely to change its morphological and biological characters under the action of various external influences, so that it may even become indistinguishable. Wiltshur had a large bedside and laboratory experience with many genuine Russian cases, some of the excreta of which were characterized by bacteria quite unlike the forms discovered by Koch. Since this familiar comma bacillus can so change its appearance, is it not fair to assume that its vitality in the new shape and character may be quite different from that of the original? Will not an augmented or weakened vitality explain many notable differences in epidemics?

Dr. Emil Weibel (*Archiv f. Hyg.*, 1894, xxi, 22) got results which go to bear out the view above given. Terni and Pellegrini (*Ztschr. f. Hyg.*, xviii, 65) find that, while the bacillus varies from the typical form, the change (at least so far as can be determined from the Leghorn cases) does not warrant one in considering that there is more than one variety of genuine cholera germs.

Gruber, at the Budapest Hygienic Congress (September, 1894), declared his conviction that at present it was impossible to distinguish the various spiral forms of bacteria, and the harmless ones are not with certainty distinguishable from the vibrios of cholera (*Sem. méd.*, Sept. 12, 1894).

Klein, writing of the morphology of bacteria (*Quarterly Journal of Microscopical Science*, April, 1894), states that the bacilli of tuberculosis, diphtheria, and even of anthrax are variable, and not so well-marked typical bacilli as has been assumed.

Cholera Germs may remain for weeks virulently alive in the *fæces* of convalescents from cholera (*Ztschr. f. Hyg.*, xviii, 42). The classical experiment which Pettenkofer and Emmerich made upon themselves by swallowing cultures of genuine

cholera germs with comparative immunity showed that these comma bacilli could be found alive for more than two weeks after they had been swallowed. Metschnikoff and others reported even longer periods of their presence. So, at the instance of R. Koch, Kolle made careful, repeated tests of the bowel discharges of fifty cholera patients in Stettin who had recently survived the disease, some having been seriously ill, while others had had only a mild attack. In one of the cases the bacilli were not recognizable in the *fæces* after three days of convalescence. Another (moderately severe) case revealed them present in the daily dejecta for forty-eight days. In most cases the period of the presence of the comma bacilli varied between one and three weeks. The severity of the attack recovered from did not bear any relation to the length of time that the bacilli were manifestly present. In some of the severe cases no bacilli were demonstrable after a week. In the same journal, a few pages later, Terni and Pellegrini, after studying the Leghorn cases, state that the cholera germs thus lingering in the bowels of convalescents from the disease do not gradually become weakened with time. That people can carry the dangerous germs about with them for seven weeks and thus diffuse the infection in all its virulence is a very important fact.

Recent Cholera Studies by Metschnikoff (*Ann. de l'Inst. Pasteur*, Aug. 25, 1894, p. 529) cause him to declare that:

1. The well-established fact of local immunity against cholera can not be explained by peculiar conditions restricting the vitality of the specific vibrio.

2. It can not be admitted that local immunity is of the nature of an unrecognized and permanent "vaccination" of the inhabitants.

3. The blood of the inhabitants of immune localities is not distinguishable by any special quality preventive of the cholera infection.

4. The ingestion of cholera cultures does not surely protect against the cholera-producing effect of Koch's vibrio.

5. The cholera vibrio, developed on nutrient media together with other microbes, is greatly influenced and changed by these.

6. The immunity of animals against intestinal cholera is in great part due to the restrictive influence that the "flora" of the digestive canal exert on the vibrio of cholera.

7. In the immunity and receptivity of human beings and animals against intestinal cholera, the other kinds of microbes in the digestive canal play an important part. This allows one to admit that the vibrio of Koch (comma bacillus) is the specific agent of cholera, and to reconcile this view with the facts of epidemiology—that is, among others, with the influence of time and place on the march of cholera epidemics.

The Isolation and Cultivation of Protozoa.—In the *Centralblatt für Bakteriologie und Parasitenkunde* announcements have been made this year by Celli and Fiocca (April 7th) and by Miller (August 25th) of noteworthy progress in the above direction. Forthcoming articles by these writers will give further details. As culture-media, sterilized, weak, neutral (or alkaline) infusions of hay, hemp, etc., are good, preferably after considerable *dilution* with water. Half of one per cent. of grape sugar or one fifth of one per cent. of milk may be added. If bouillon be used, as for bacteria, it should be diluted twenty five or fifty times. A pinhead-sized bit of tendon (for each flask) may be added and a half per cent. of glycerin. Small, broad, narrow-mouthed Erlenmeyer flasks, stopped with cotton, are used, the fluid standing about half an inch high in the flasks. They require steaming for fifteen minutes on each of three successive days. Extreme care and biological cleanliness are necessary to lessen the danger of contamination and overwhelming with bacteria, some of which are injurious, although various kinds are devoured by *amœbæ*. *Amœbæ*.

plasmodia, and many other protozoa thrive at 98.5° F., and the maintenance of such a temperature restricts, according to Miller, fungous growths that tend to grow down through the cotton plug.

In all amœbæ as yet cultivated, multiplication is by division. The process requires from one to three days, and can be very well observed in hanging-drop cultures. Celli and Fiocca report that amœbæ can resist a temperature of from 32° to 45° F. for days. They can withstand heat of 140° F. for an hour, and, when encysted, heat of 152° F. for several hours. If at a temperature between 55° and 60° F., they can survive exposure to sunlight for at least eleven days, whether they be dry or moist. In diffused light, they can indefinitely long resist drying. Although not developing anaerobically, deprivation of oxygen for half a year does not destroy them even when kept several feet under ground. They are more sensitive than are ordinary bacteria to the action of antiseptics, especially acids; yet bacteria are less tolerant of alkalies, amœbæ being able to thrive on highly alkaline culture media.

Diphtheria, and how it is Spread.—Flügge (*Zeitschr. f. Hyg.*, etc., xvii, 401, July, 1894) states that the bacilli causative of this disease perish when dried and converted into fine, air-borne dust. Accordingly the danger of the infection being borne through the air is minimal. It is from direct contact that most harm results. Inanimate objects keep the contagion alive. In moist climates it survives better than in dry regions. If soiled clothes are kept in closed containers or in cellars, the germs there have a good chance to live and do harm.

Overcrowding and lack of personal cleanliness of course count for much in favoring the spread of the disease. Common use of the same uncleaned spoons, dishes, and vessels for eating and drinking from, and also the common habit of kissing on the mouth, cause many cases. Decomposing filth piles (as such) and "sewer gas" are not causes. Geological conditions, peculiar soil or topography, ground-water fluctuations, age of houses, and similarly classical causative factors do not amount to much in the ætiology of this disease. Houses where it has occurred are not so much to be feared as are people who are uncleanly and careless.

Gonococci.—Finger, Ghon, and Schlagenhauser (*Allg. Wiener med. Zeitung*, Aug. 14, 1894) found that streak cultures from gonorrhœal pus, on urine-agar in Petri dishes, gave the most satisfactory results, although human serum was a little more reliable in producing an abundant growth in case the gonococci were scanty in the pus. They thrive best at 97° F. (or between 86° and 102° F.). From 77° to 86° F. they grow only scantily. Above 104° they die out rather rapidly. They remain alive in pus only till that becomes dry, which is a point of medico-legal importance. The culture medium must be kept moist. Acid media are better than alkaline.

Leprosy in North America is considered by Hyde and by Morrow in the *American Journal of the Medical Sciences* for September, 1894, pp. 251 to 268. The disease is very difficult to recognize in the milder forms, so much so that Dr. Morrow holds that "no system of quarantine can be instituted sufficiently searching and rigid to exclude a disease so little manifest on ordinary examination as leprosy." Dr. Hyde gives a bibliography of a hundred and twenty papers. The home of the disease is in Asia. Thence it has gone both eastward and westward to America. Besides a number of cases at large in the Sandwich Islands, there are eleven hundred and forty-two lepers at the settlement in Molokai. The southern portion of the American hemisphere has suffered from leprosy much more than the northern portion. In Cuba there are between three hundred and five hundred cases and several hundred in other parts of the West Indies. Hardly any of the cases are segre-

gated. In South America, Central America, and Mexico, the number is unknown. Since 1815, there have been about two hundred and fifty cases in New Brunswick. At present there exist there less than an eighth of that number. Of the five hundred and sixty cases heretofore recognized in this country, a hundred and fifty-eight have occurred in California, a hundred and twenty in Minnesota, a hundred in New York, eighty-three in Louisiana, and the others have been irregularly scattered over the country. At present there are probably between a hundred and a hundred and fifty unquestionable cases in the United States. The routes of maritime traffic appear to have been the paths over which most of the cases entered. The presence of the few that are here is a menace to public health and constitutes a problem needing the attention of the general government.

Tubercle Bacilli in the Nostrils of Healthy Persons.—Straus (*Archives de méd. expér. et d'anat. pathol.*, July, 1894) tested the dust, solid particles, and mucus of the outer nasal cavities of twenty nine patients and ward tenders in two hospitals of Paris. The subjects of the test had all been in the hospitals for at least several months, but were not in any way tuberculous. The dust and other nasal contents were removed by the aid of sterile cotton plugs and caught in sterilized water or bouillon, which was injected into the peritonæums of guinea-pigs. Out of all the experiments (twenty-nine), seven trials caused death of the animals by septicæmia or purulent peritonitis. In nine other experiments tuberculosis became unquestionably manifest in from three to five weeks from the time of inoculation. The lesions were very distinct, and the bacilli were demonstrated in every one of these cases. Therefore nearly one third of the people tested had virulent tubercle bacilli present within their nostrils.

Tuberculosis in Earliest Infancy.—Wassermann (*Ztschr. f. Hyg.* etc., xvii, 343), as a loyal adherent of the Koch school, criticises the doctrine of Baumgarten that the disease is much more of a hereditarily transmitted plague than Koch, Cornet, and many others admit. He says that the bacillus of tuberculosis is the important thing to be demonstrated in doubtful cases, and microscopic tests are necessary. Animal reactions and macroscopic appearances are much less satisfactorily demonstrative. Especially in laboratories, where many tests of the kind have been made, is the result of animal inoculation not wholly beyond reproach under ordinary circumstances. With guinea-pigs this disease may be spontaneous. In acceptable experiments animals must die within a given time, the lesions must be typical of tuberculosis, and the oldest and severest lesions must be near the place of inoculation. This writer takes exception to the reported cases of undeniably hereditary transmission of the disease during the last twelve years, and considers that there are only two unquestionable cases of hereditary tuberculosis in human pathology, and nine in veterinary records. He does not even touch upon the important experiments of Gaertner.

A case of great interest is given to show how rapidly the disease can be acquired and run its course. A six-weeks-old babe, showing no signs of syphilis, wasted and died within five weeks. Tubercles with many bacilli were found in the lungs, on the pleura, in the liver and kidneys. The oldest lesion was a cheesy nodule in the apex of the left lung, which probably diffused the infection. The mother and father seemed free from tuberculosis and syphilis, and so hereditary origin of the child's disease appears wholly excluded.

When the babe was nine days old the mother carried it to the house of the brother-in-law, and for eight days the child remained in the same room with this patient, a "consumptive," who coughed much, and whose sputa were allowed to dry. The

child was there all the time; the mother only at night. At the expiration of the eight days they removed to other quarters, where no infection of tuberculosis existed.

Of quite a different view is Jousset's work, given in a series of experimental and clinical studies on tuberculosis, published by G. Masson, under the direction of Verneuil. It is there stated that the congenital origin of the disease is the most common, and that Cornet's theory is quite improbable if judged by facts. Jousset says that an actual danger is arising from the suppression of the importance of heredity in this disease, and the exaggeration of the importance of mere contagion in the causation of this disease.

Cases of intra-uterine tuberculous infection, of interest in connection with the above, are reported in the *Münchener med. Woch.*, 1893, pp. 727, 751, 1001.

Tuberculous Meat: Is it Unfit for Food?—Leclainche, of Toulouse (*Revue de la tuberculose*, July, 1894, p. 133), collates the results of many experiments, and considers that there are no authentic cases of tuberculosis arising from the ingestion of diseased beef, and that it is very rare that we can experimentally transmit the disease even by inoculating diseased meat into guinea-pigs, the most susceptible of all animals to the infection. It is proper to authorize the consumption of all tuberculous meat after it has been completely sterilized by heat, says Leclainche.

Method of Destroying Carcasses of Diseased Animals at Hamburg (*Lancet*, July 21, 1894).—This usually difficult task is said to become an easy, successful process by the use of a destructor made at Augsburg by Riedinger. It consists of a large iron cylinder or drum, horizontally placed, and revolved by a two-horse-power engine. This cylinder is approached from above, and there is an opening in the side through which the matter to be destroyed is introduced. At each operation three tons can be treated. Plates are arranged inside to throw the mass toward the center. At the beginning steam under pressure is introduced for two hours and a half into the inside of the cylinder. Then, at a pressure of two or three atmospheres, steam is sent into the jacket surrounding the cylinder. By a clever arrangement the fat is extracted, the gases are drawn into the chimney and rendered inoffensive, and the waste matter is converted rapidly into valuable manure in the form of a brown powder. Such destruction of carcasses cost the city much money formerly, but this apparatus yields a profit of \$2,500 per year, not allowing for cost and salary. New machines are being constructed with notable improvements.

Condemned meat is sprinkled with petroleum (or crude carbo-lic acid) after being incised. These permeate the mass and preclude the possibility of its being accepted as food.

The Disinfectant Value of Turf Powder.—As this is being urged somewhat, the results of a special study by Loeffler and Abel (ref. in *Centrlbl. f. Bakt.*, etc., July, 1894) are worthy of note, since they show that turf is not at all reliable. Even when two per cent. of sulphuric acid was introduced into it, and a volume of turf was used equal to that of the fæces, it took twenty-four hours to destroy the contained cholera bacilli. Typhoid fæces were much more resistant, requiring at least from four to twelve days' exposure. Fraenkel and Klipstein (*Ztschr. f. Hyg.*, xv, 333) reached somewhat similar results, although they rather favored the use of turf for mixing with fæces where a "pail system" is in operation and no sewerage exists.

Gärtner (*Ztschr. f. Hyg.*, xviii, p. 263) finds also that (even though containing twenty per cent. of superphosphate of calcium) turf is not a sufficient disinfectant for fæces unless most completely mingled with them—a not always practicable condition. Turf is unfit for the disinfection of stools from cholera

and typhoid patients. Milk of lime is excellent for this purpose, and should be used as soon as the discharges pass from the patient.

Miscellany.

Immoral Massage Establishments.—The *British Medical Journal* for November 3d and 10th publishes reports from its special commissioners, delegated to investigate the massage establishments of London, mention of which was made in an extract from the *Journal* in our issue for August 4, 1894. Under the title "The Scandals of Massage" the *Journal* says:

"I. Our readers will remember that we called the attention of the authorities some months ago to gross scandals which had come to our notice in connection with the practice of a certain number of houses of alleged 'massage.' We suggested then nothing which was not based upon information furnished with authority, and we felt it our duty to urge that action should be taken by the police. In reply to interrogations the Home Secretary stated in Parliament that he had directed police inquiry on the subject, and the later result was that the public were informed that Scotland Yard had investigated the matter and found no reason to take action. Our statement that one of the massage houses had been in fact raided by the police was denied, and Mr. Asquith said that the police had no such information. We were duly taken to task by various critics for having started an unnecessary and undesirable commotion. We had meantime the advantage of official visits from Scotland Yard, and placed in the hands of its representative the clews—the names of our informants; but again with a wholly negative result.

"It therefore became our duty to continue the inquiries which we had made, not merely in order to establish the facts, of which from the first there was no doubt, but in order to place the evidence in such a form that it shall be beyond the reach of official incredulity. We accordingly commissioned gentlemen, whose medical and legal capacity and status are above criticism, to deal with the evidence and to follow it up further.

"We are now in a position to state the results of our inquiry, which are such as it will be impossible for the public to regard with indifference or the police to ignore. We shall deal with these in a short series of articles, setting forth the various aspects of what threatens to become in its way one of the most monstrous of the mischiefs of the time, and has for us the especially painful interest that it is cloaked under the guise and protected by the mask of an assumed medical use. We are driven to this course. It would have been better if the Home Office had followed up our former suggestion by such steps as would have prevented the opening for another season of a scandalous traffic. Why the police could not find out all and more than all we have ascertained we do not know. We feel bound to say plainly that, in reply to their very courteous communications, we placed frankly at their disposal the facts and informations on which our first article was based. What action they took we can not say. But, in the face of the official declarations and subsequent inaction, it is clear that nothing more is likely to be done, unless a public opinion is aroused which neither the authorities nor the offenders can ignore.

"We commence by saying, since the time is opportune, that one of the most obvious symptoms of the mischief may be discovered at any time by an inspection of the advertisement columns of the newspapers. The worst offender, we regret to say, is the *Morning Post*. For many months there have appeared

in high-class newspapers, as in certain others, a series of advertisements of persons and places proposing 'massage' treatment. The form of some of these announcements has been itself in many cases sufficiently suggestive. That some of them are not intended as covers for any evil design is, of course, beyond question. That no small proportion are the lures and touts of places of execrable character is equally certain. We shall have occasion to refer to some of them in the articles that are to follow. We will merely call attention here, in the first instance, to the nature of the advertisements and the general arrangements of the trade.

"The advertisement generally begins with the word 'massage.' To this, 'electrical' treatment is sometimes added, and occasionally there is an announcement of a 'bath de luxe.' This may be, perhaps, a 'pine bath'—the specialty consisting, of course, in the cheap and easy addition of a little pinol. It is then customary to announce that 'Madame' X., assisted by 'Nurses' Y. and Z., 'receive patients daily' at some address within easy reach of clubland, 'from 11 A. M. to 7 P. M.,' or thereabouts. It is indicated that arrangements may be made at other times 'by appointment.' Occasionally, but not commonly, 'Madame' refers to a multitude of diseases of the vaguer type, including, let us say, 'debility' and 'insomnia.' The usual advertisement, however, makes no detailed reference to the supposed medical quality of the operation, unless it be in the insertion of the word 'certificated' after the name of the principal. In some cases we have noticed the words 'London Hospital' certificate. As there is no real 'hospital' qualification in massage, this is probably a reference to a gentleman having more or less of hospital status who grants such certificates; but to this subject we shall return. Sometimes the lady assistants are commended to the public by the significant addition, 'fresh staff.' In one or two cases there has been special reference to a 'page boy'; but this topic, we are informed, has been discouraged by the newspapers. You are occasionally told that the rooms are 'well warmed,' or 'cool and pleasant'—according to the season—or simply that they are 'luxurious.' One lady advertised, earlier in this year, under the heading 'Massage,' in the following terms: 'Wanted, an assistant, at once, not over twenty-three; bright and nice manners; from two to seven.' The prospect offered was a pound a week. If the work was honest, this was not much, but, as will be seen hereafter, there are sometimes other emoluments besides the stated salary.

"There does not, however, appear to be any great difficulty in obtaining assistants, for the advertisements for these are comparatively rare. One enterprising madame, who was provided with three lady assistants and three 'baths de luxe,' explained to her clients that there would be 'no waiting.' Another, who made special reference to 'loss of nerve power,' called attention to her 'special continental system.' Sundays are generally available, and there are occasional intimations that the ladies will come out to 'visit' if required. Occasionally a masseur is laid on, but he is an exception. The treatment is almost always left in the hands of young ladies, whose attractive qualities are deftly indicated in various ways, and who are described, either by their pet names, as 'Nurse Dolly,' 'Nurse Kitty,' and the rest, or by names of a highflown and manifestly fictitious character, which, to say the least, do not at first sight indicate a very sober conception of their office.

"These advertisements have appeared in shoals for many months; they are still continuing day by day. From a study of them it is easy to see that many of the principals change their addresses frequently, and occasionally find it desirable to change their name. It is also apparent that the policy of a 'fresh staff' is conscientiously carried out by reasonably rapid changes among the young lady assistants, whom each lady advertises to

her *clientèle*. It is not very difficult, in fact, to distinguish certain steady and serious establishments from a kind of floating and shifting gang.

"Our readers can judge for themselves from our account, or still better from a file of the newspapers, whether these advertisements do or do not appear to indicate a wholesome development. We are far from saying, we repeat emphatically, that all the advertised establishments are necessarily suspect. We have reason to know that some of these ladies are honest and capable, and we have every sympathy with them, for their legitimate and helpful work is ruined by their less scrupulous competitors.

"Some of the announcements, which look suspicious and to which we have directly or indirectly referred, may be innocent or merely indiscreet. We shall bring and desire to bring no charge against any one place or person except those whom we shall presently identify, and as to these we shall state not surmises and inferences, but facts which can, if necessary, be proved.

"In the summer months the establishments are closed for the most part. When London fills up again they become active. We will leave for another article the explicit statements which we have to make as to the nature of the practices which go on in many of these places; but for the present it may be sufficient to state shortly what kind of place the casual inquirer will find if he goes for the first time to some of the addresses we refer to. He will find probably a flat of four or five rooms in a fashionable West End locality. In many cases the establishment is on the first floor over business premises. The approach to it is guarded by various arrangements for privacy. As the visitor enters an electric bell rings automatically, and he will find himself received in a well-furnished room by a lady of middle age, with a certain capable air of respectability. She will make no inquiry as to his name, and probably none as to his complaint. He will be invited, with little loss of time in preliminaries, to adjourn to a room luxuriously furnished, where he will find a bed or couch spread with blankets. He will be informed, unless it is assumed that he knows it already, that the terms are for an hour a guinea, but that he can stay as long as he pleases by the same rate. In some instances it will be suggested to him that it would be a good thing to have a bath first and the massage afterward. It will be assumed, as a matter of course, that he intends to have 'general massage,' that he will want a young lady to do it, and that he will undress completely.

"Madame will then leave him to his own devices. In two or three minutes the lady assistant will appear, and the 'treatment' will be duly administered. He will not be interrupted, nor, in fact, will he see 'Madame' again until he pays her as he leaves the house. This state of things in itself will be admitted by everybody to be sufficiently risky. What it leads to we shall feel it our duty to indicate with decent plainness in another article."

"II. We have said that the police did not appear to be able to discover any of the abuses to which we called their attention before the vacation, and which we described in the last article under this heading. Our commissioners, however, did not find that the task presented any peculiar difficulty. Various gentlemen took occasion to present themselves at different establishments in the ordinary course of business; and they found that the young lady assistants who carried on the treatment were quite prepared, if not on the first, at least on the second or third, visit to talk with sufficient freedom about the peculiarities of the trade. One fact was common knowledge everywhere—the alarming incident of the closing of the house to which we had already referred, and as to which Mr. Asquith averred in the House of Commons that either it had never occurred or at least he had not been able to find any trace of it. The estab-

lishment was situated in the City. We will not name the address, although we have it; but it was in very close proximity to the business center of London. According to some accounts, it was kept open all night; but, whether this be true or not, it is agreed by all parties that it was a somewhat startling establishment, and that it pursued a prosperous and notorious career, until the police visited it one day, and it had to close for ever. Of course, we can not say whether the Home Office denial may not be technically true, for it is quite possible, looking to the history of some of the other persons who have taken up massage business, that the police may have 'wanted' some one at the City establishment for offenses of a more ordinary and commonplace character than the scandals with which we are dealing. The fact remains in any case that there was such a house in the very center of the City, and that its career was suddenly closed by the intervention of the police. We have even reason to identify certain of the lady assistants who officiated in the City house with certain ladies who have been in fact advertised in connection with West End establishments very recently, if indeed the advertisements are not still appearing.

"As regards the West End houses, we repeat what we have already said, that it would be most unjust to suggest that all the establishments which are advertised, or even all of those whose advertisements contain the phrases we have noted as suspicious, are otherwise than honestly intentioned establishments. But in almost all those which we have investigated it is beyond question that the method in which the business is carried on is dangerous to the last degree, and that the customary arrangements are of such a nature that it would be hardly rational to expect that scandals should not arise.

"Nothing is more honorable than the profession of a genuine nurse, and certainly no one would suggest in this *Journal* that mere questions of necessary exposure in the difficult and delicate business of nursing could be stigmatized as indecent. But the system of these houses is a very different matter. The clients who attend are not persons reduced by illness to a hospital bed; they are men for the most part fresh from the clubs, and very often not only full of health, but full of wine. They come upon no kind of medical prescription, and, indeed, with no pretense that their object is genuine medical treatment or that they are suffering from any complaint which requires it. They walk in and order 'general massage' in much the same fashion as they might order a Turkish bath; and it is assumed, as we have already said, that they will undress.

"If it were proposed to open a Turkish bath establishment for men in which all the attendants would be attractive young women, we have no doubt the Home Office would see its way to interfere. But even that would not be quite so bad as what happens every day in the massage houses, for not only is the client treated by the so-called nurse in a condition of nudity, but the two are left deliberately alone for as long a period as the gentleman chooses to pay for. The only remnant of decency in this extraordinary custom is that in some establishments the gentleman is supposed to lie down on a bed or couch and cover himself with a blanket, but as often as not he does nothing of the kind. Where there is a bath, the lady attendant calmly attends upon him all the time, and he lies down and has the massage applied to him immediately afterward. We ask the Home Office and the profession, not to speak of the general public, whether this is not a state of things which involves the most obvious risk?

"As a guarantee that our statements are in no way exaggerated, we append a literal account of the initial experiences of one of our commissioners in his own words. We will only premise his graphic account by stating that he is a professional gentleman well known in London, and that he chanced at the

time to be suffering from a slight rheumatic affection. After relating a visit to an undoubtedly honest and scientifically conducted establishment, he proceeds to describe a subsequent visit to another of the advertised houses. We possess, of course, the name, date, and address, but we do not at present think it necessary to publish them in view of the possibility of further action.

"'It was,' says our correspondent, 'a more pretentious establishment, and things were conducted on a more lavish scale. I was introduced to the proprietress, who was called "Madam" in the advertisements, but who appeared to be more familiarly known as "The Boss." I explained to her that I was suffering from a slight rheumatic affection of one of my joints. She was very sympathetic, and told me that if I would adopt her system and take a seat for a few minutes, she would speedily afford me relief. She thought that a *bain de luxe* would be appropriate, but when I told her that I preferred massage, she assured me that it would do equally well. I was shown into a cosily furnished room in which Madam left me, telling me that I would find it more convenient if I would completely undress, assuring me that the correct principle, and the only one followed in the establishment, was complete general massage, with special massage of the affected part. I followed her instructions and in a few minutes was visited by a gracefully attired young lady, who performed general massage, and made herself generally agreeable. I had some conversation with her, from which I gathered that three or four assistants, all young women, were retained by Madam, and that they had to work from ten in the morning till seven in the evening. She pleaded that women had to make a living somehow, and that it was remunerative. I suggested that her salary was in all probability not a big one, and she admitted that it was very small indeed. I offered her a small present, which she accepted with avidity. On going out I discharged my indebtedness to Madam and left with the conclusion that it was a profitable game for the proprietress. I was asked if I had received attention and satisfaction, and was cordially invited to come again. I felt that I had not fully availed myself of the attractions offered by the establishment.'

"The next report proceeds as follows:

"'I again saw Madam, and told her that I wished for the services of the young woman who had previously attended me. Madam cheerfully acceded to my wish, and suggested that in addition to the massage I should have a bath. She took me upstairs to a room furnished with a bed or couch, and having a bath in an anteroom. She herself prepared the bath, and told me to undress and get in. In a few minutes she returned, and remained talking to me for some minutes while I was in the bath, explaining that the young lady would be with me in a few minutes. The bath was an ordinary full-length one. . . . [Here follow some unimportant details.] No dress and no bathing costume of any kind were produced, and the patient was evidently expected to expose himself fully to the gaze of the attendant. In a few minutes the young lady appeared, charmingly attired as before, and after giving me a cordial welcome turned on the current. She then proceeded to wash my face and soap my arms and legs and thighs, and finally my back. After a few minutes' desultory conversation she helped me out of the bath, and without any attempt at covering laid me on the couch and repeated the massage as before. I remained for about an hour, and at the expiration of my visit offered her a small present, which as before she accepted without hesitation. She finally took me downstairs to Madam, to whom I paid a guinea for the services rendered. In one of the rooms I noticed a framed certificate signed by a physician who makes a specialty of such documents. I had not an opportunity of examining it closely,

but I was informed that it was Madam's diploma. I was told by the young lady that they were 'full up' nearly all day long, that they did the work while Madam received the visitors and took the money.'

"We remark then that in this establishment, against which so far it will be observed we make no charge, and draw no inferences beyond the bare recital of what any chance visitor would see, there were certain young ladies engaged, as was stated, all day long manipulating men of all kinds, unknown and un introduced, in a state of nudity and quite alone. These ladies depended for their living largely on the 'tips' of their clients. It will be observed, in Madam's favor, that some color of medical treatment was given to the operations by the accident that the visitor had a slight ailment, and that a certificate, signed by a London physician, was a framed ornament of the establishment. We believe, to do her full justice, that this lady did know a little about real massage. But it will be obvious in the sequel that such knowledge is not to be expected, even in the most moderate degree, from the operators in most of the establishments. It will also be seen that the initial allusion to rheumatism was only the result of the visitor's inexperience. In entering the houses to which we have referred as a scandal, it is wholly needless, and indeed absurd, to complain of any ailment. To these points—namely, the system of 'certificates' and their medical value, the system of tips and the recruiting of the girls employed, and the gross and palpable offenses to which this state of things in fact leads up—we shall refer in our further articles."

The Influence of Occupation on Eyesight.—The *Lancet* for November 10th publishes an abstract of a paper on this subject which was read at a recent meeting of the British Medical Association by Mr. Simeon Snell. In this paper he refers to the effects of bisulphide of carbon and says that this heavy, transparent, ill-smelling fluid is used as a solvent of sulphur chloride, and is the agent effecting the vulcanization of India rubber, and that during the curing process heavy fumes of the bisulphide are given off. The vapor was much employed some years ago as a powerful irritant of the conjunctiva, causing abundant lacrymation, by which it was thought that nebulae of the cornea, left after ulcers, could be washed away or cleared up. Mr. Snell states that he has seen one case of amblyopia, which he considers was due to this agent, since the affection supervened after exposure to its influence, and disappeared when the man was engaged in another part of the works. Another chemical agent exercising a deleterious action on the eye and on the health generally is dinitrobenzol. This substance is used in the manufacture of explosives, and the patients affected were chiefly those engaged in mixing or grinding the material. It induces amblyopia or dullness of vision. The toxic influence of tobacco, when chewed, may now be regarded as a well-established fact, but Mr. Snell endeavored to ascertain whether Galezowski's statement, that visual disturbances occurred in those who were engaged in the manufacture of tobacco as a consequence of the inhalation of nicotine powder, was correct. He, however, is opposed to this view, and he quotes the opinions of Mr. Shears, Mr. C. Lee, and of Dr. Dowling, the last named having examined the operatives in a factory where three thousand men and women were employed, all of whom disproved Galezowski's statement. In particular Dr. Dowling found that those who did not smoke were uniformly free from troubles of vision of a toxic nature, and that the women were almost universally free from the trouble. Cases recorded by Mr. Priestley Smith and Valude show that iodoform must be added to the agents causing toxic amblyopia; but the results of inquiries made for Mr. Snell in iodoform manufactories are

to the effect that no cases have been observed of impairment of vision attributable to the manufacture of this substance.

The prejudicial action of lead has long been known, but Mr. Snell mentions a hitherto unsuspected mode in which the toxic influence of this metal may be produced. Saturnine amblyopia occurs, it appears, among the filecutters of Sheffield, and this is due to the circumstance that the file is placed on a lead bed, and each time it is struck with the chisel enough lead is raised to cause by its inhalation the symptoms of toxic amblyopia. It may, however, be reasonably suggested that the lead is introduced by the contact of the hands with it and its ingestion with food.

The most interesting part of Mr. Snell's paper is the discussion on the influence of intense light and excessive heat. His own observations do not support the statements made by others that glassblowers are frequently the subjects of cataract. Mr. Snell has ascertained that there is a very marked difference in the way a temperature is borne when it is below 2,000° F. and when above that heat. Up to that degree a man can look at the metal in a furnace with comparative ease, but before it reaches 3,000° he is compelled to wear colored glasses. Now in cast-iron furnaces the heat of the metal is from 1,800° to 2,000°, and the men take no precautions; but the heat of the molten steel is from 2,700° to 2,800°, while the heat of the gases in the furnace would be about two or three hundred degrees more, and the men have to wear dark-blue glasses to protect their eyes. In none of these cases, however, has Mr. Snell been able to associate any deep or superficial eye lesion as a result of the exposure of the eye to intense light and heat. There is still another source of light which has been found to exert a prejudicial influence on the eye—namely, electricity; exposure to the light employed in electric welding—supposed to be equal to eight thousand candles—causes sharp conjunctivitis, with great pain and lacrymation, and, if it is allowed to enter the eye, optic neuritis, with retinitis and a central scotoma in the vision, is extremely likely to occur. The effects are due to the chemical rays, which are most intense toward the violet end of the spectrum, and the men are obliged to use a screen made of dark ruby, non-actinic glass. These and many other interesting details, says the *Lancet*, are given in Mr. Snell's paper.

Prehensile Feet among the Japanese.—"The art of 'getting there with both feet,' which Japan has been illustrating in her treatment of China, seems to be a natural endowment," says the *Journal of the American Medical Association*. "M. Michaut, the anthropologist, who has been investigating the subject, finds that the Japanese have marvelous address in the use of their feet as means of prehension. These members possess extraordinary mobility; the first metatarsal bone is separated from the second by an interval which may measure from eighteen to twenty millimetres, and the ball of the great toe may be made to touch the two adjoining toes. The Japanese rest on their knees, the feet in forced extension lying on the dorsum inclined inward and crossed one on the other, thus forming a little bench on which the pelvis rests. All the Annamites—the Cochin Chinese, the Tonkinese, and the Annamites properly so called—also have a remarkable separation of the great toe, amounting to from three to five millimetres, and prehension also is possible. This can not be attributed to their foot-wear, as might be the case with the Japanese, since the Annamites either go barefoot or wear sandals; nor to adaptation to environment, because they are inhabitants of the plains. History tells us of the kingdom of Giao-Chil, or the people of the 'bifurcated toes,' who presented this ethnic peculiarity of widely separated great toes in its maximum degree, and examples are still met with—in some families the anomaly being hereditary and descending usually from father to son."

Original Communications.

A REPORT OF CASES OF CHRONIC HEART DISEASE

TREATED BY

THE SCHOTT METHOD OF BATHS AND GYMNASTICS.*

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FROM a therapeutic standpoint cardiac diseases may be divided into three groups :

1. Those in which a disappearance of signs and symptoms follows treatment, and a cure may be said to result.
2. Those cases in which treatment preserves or restores compensation, and the individuals are thereby enabled to enjoy added years of life and usefulness.
3. Those distressing cases beyond hope of more than transient relief of symptoms and in which the ablest therapeutic management can not restore compensation.

For the most part, the first group is made up of cases of inorganic heart disease, whereas structural diseases of the heart, whether valvular or confined to the myocardium, constitute the other two.

To the second group, furthermore, belong those cases with loss of compensation in what Fraentzel terms the first and second degrees. Cases in which lack of compensation has reached the third or extreme degree, and in which there is hope of but temporary relief of the most distressing symptoms, comprise the third group. Prior to the time of the great Stokes, when cardiac hypertrophy was treated by venesection and other depleting measures, patients with heart disease were doubtless often brought prematurely into this third degree of lost compensation. Not only do more enlightened methods preserve patients from a mismanagement that would hasten them into a loss of compensation, but it is to be hoped that in the future a more advanced therapeutic knowledge will preserve a still greater number from entering this third and fatal group, or will be able to restore compensation in cases now considered past all such possibility.

The aim of this report is to direct attention to the value of certain baths and light exercises in cardiac therapeutics, by which it is believed patients suffering with organic heart disease of chronic nature may be more promptly and lastingly improved than by drugs. As the employment of mountain climbing in the treatment of cardiac affections is called the "Oertel method," so this is often spoken of as the "Schott method," because of the important work in this line done by two German physicians, Dr. August Schott, now dead, and Dr. Theodore Schott, of Frankfort. Many if not all of the members of this association are acquainted with the method through the latter's published accounts of his twenty years' experience, or possibly through my paper on the subject that appeared in the columns of the *Journal*

of the *American Medical Association* of November 11, 1893. Therefore a repetition of what I narrated at that time would be tiresome ; yet a brief statement of the *rationale* of this system of cardiac therapeutics may serve to emphasize the results of the treatment shown by the annexed case reports.

The baths owe their efficacy chiefly to free carbonic acid and the two salts of sodium and calcium chloride, the other saline ingredients of the natural waters of Bad-Nauheim being present in too limited amounts to do more than lend feeble aid to the effect exerted by those named.

The next important feature of the baths is their temperature. Warm baths are debilitating, and exert a decidedly weakening effect upon the heart even in health. They are recognized, therefore, as inadmissible in the treatment of diseased hearts.

Accordingly the temperature of these baths ranges between 92° F. or 93° F. at first, and 87° F., or a little lower, toward the end of a course of treatments. At these temperatures baths are cool, and even at 92° F. impart a distinct feeling of chilliness as patients enter them.

The duration of each bath is limited, and is increased cautiously with the progress of the treatment and improvement of the patient's condition. From five or eight minutes as the initial limit, baths gradually reach a duration of twenty minutes.

But one bath is given daily, and this is omitted altogether every fourth day. A course of treatments extends through six or seven weeks ; baths are then discontinued for about a month, after which they may be resumed if the patient's condition indicates their renewal.

After each bath the patient is required to lie down and rest for at least an hour, that the influence exerted on the heart by the bath may not be counteracted by that of exercise.

If the pulse of the patient be watched during the bath, it will be found to become slower, fuller, and stronger, and if irregular in rhythm before, it is likely to improve even to the extent of attaining perfect regularity. Efforts on the part of the bather—such as speaking, forced breathing, moving about, etc.—generally occasion temporary irregularity and acceleration of his pulse. The respirations are generally slow and deep, partly in consequence of a feeling of oppression of the chest experienced by most individuals. This sensation of weight is not complained of by all in equal degree, however, and it is usually lost after a few baths. The improvement in the rate and quality of the pulse is an index of the degree of benefit derived by the patient. If not counteracted by exercise, this effect on the pulse will persist for an hour or two subsequently. Changes for the better in the size of the area of cardiac dullness and in the sounds may be noted likewise. This was demonstrated repeatedly last year, both on myself by a competent Russian physician and by myself on others. Careful percussion immediately before and after a bath of eighteen to twenty minutes' duration showed a demonstrable retraction of the deep limits of cardiac dullness, and the heart sounds were improved in strength, the second pulmonary

* Read at the eleventh annual meeting of the American Climatological Association, held in Washington, May 31, 1894.

being less accentuated, the second aortic stronger—in short, the abnormal difference between the two sounds before being appreciably less marked after the bath. Murmurs that are almost inaudible before become intensified; and, conversely, some loud bruits are lessened in intensity. In short, so far as can be determined by physical examination, these baths appear to lessen the rapidity and increase the force of the heart's contractions, thereby occasioning a better filling of the great arterial system with corresponding depletion of the engorged veins. This is borne out by experiments on animals conducted by Dr. August Schott, which demonstrated, by means of a mercurial manometer placed in the trachea, that a rise of arterial pressure was the result of nearly complete immersion in a saline solution.* In this respect, therefore, the effect of these baths is similar to that following the administration of digitalis: both lengthen diastole and augment the force of systole. In addition, digitalis exerts a powerful influence as a vaso-motor constrictor, which action sometimes offsets its beneficial effect on the heart. This action on the vascular system is felt by all the arteries alike. Herein, as it seems to me, lies the difference between the effect produced by digitalis and that exerted by these baths. Experiments have demonstrated that the contraction of cutaneous vessels effected by cold baths occasions at first increase of blood pressure and of the frequency and strength of the heart's contractions, but that later on the acceleration gives place to a retardation of the rate.† The pulse, therefore, becomes slower and stronger during a cold bath, provided this be not continued until vaso-motor paresis sets in. Thus far a cold bath of moderate duration affects the heart in its contractions similarly to digitalis, although the mechanism by which this result is accomplished differs. On the other hand, Schüller‡ has shown that the application of cold to the abdomen—that is, contraction of the cutaneous vessels of the abdomen—is followed by prompt dilatation of the vessels of the pia mater; whereas heat applied to the abdomen is succeeded by constriction of the vessels of the pia mater. From these experiments it is probable that the effect of a cold bath is not to cause contraction of internal as well as of cutaneous vessels, but that a cold bath is followed by dilatation of internal vessels. In short, during and after a cold bath of moderate length, the heart contracts more slowly and forcibly. Furthermore, although there is not a *consensus* of opinion as to the balneological effect of mineral waters, whether or not their saline and gaseous constituents serve as mild stimuli to the sensory nerves of the integument, it is probable, as remarked by Leichtenstern,* that they act as vaso-motor dilators, since cutaneous redness follows their prolonged use in degrees of considerable strength.

From the foregoing facts, and from empirical knowledge of the beneficial effect of a balneological treatment of many cases of heart disease, I venture to deduce the following as the *modus operandi* of these baths:

Upon a patient's entering the bath there is an initial or primary constriction of the cutaneous vessels produced by the cold. This is promptly followed by a dilatation of the internal vessels and stimulation of the heart; its contractions, at first perhaps accelerated, become subsequently reduced in rate and augmented in force. After a moment or two the sensation of chilliness gives place to one of warmth, when it is probable the contraction of the cutaneous vessels grows less; the gentle stimulation of the sensory cutaneous nerves produced by the salt serves, however, to maintain the increased energy in the cardiac contractions. This secondary feeling of warmth does not act like a primary application of heat to the surface of the body by causing contraction of internal vessels; their dilatation persists, as is shown by the accompanying sphygmographic tracings (Nos. 1 and 2). The first was taken immediately before the bath; the second, taken after the



patient had been in the bath ten minutes, bears slight but unmistakable testimony to increased fullness and force of the pulse during the bath without increased tension; while there is nothing to suggest the slightly lessened tension being due to diminished energy of the left ventricle.

Under these conditions the heart not only has less labor to perform, but it is actually aided in the accomplishment of its decreased task. Like digitalis the baths slow and strengthen the cardiac contractions, but unlike digitalis they dilate rather than contract the arterial system, or, in other words, reduce rather than increase peripheral resistance.

The light exercises, or, as the Schott brothers choose to designate this part of their cardiac therapeutics, the gymnastics, are an extremely simple but important adjunct to the baths. They consist of movements of flexion, extension, and rotation of the extremities and trunk; but the individuality of this treatment lies in the application of counter-resistance made by an attendant trained for that purpose. He must see to it that the movements are performed slowly and steadily, that they are interrupted by short periods of repose, and that the effort exerted by the patient is not so great as to cause embarrassment of respiration or undue acceleration of the pulse. The attendant must watch lest the patient hold his breath and thereby overstrain the already feeble right ventricle, and must at once call a halt upon evidence of dyspnoea. Finally, he must so apply his counter-pressure as to offer resistance

* Five to ten millimetres with a ten-per-cent. salt solution, and ten, twenty, thirty millimetres with carbonated waters.

† Von Ziemssen's *Handbook of General Therapeutics*, vol. iv, pp. 286 *et seq.*

‡ *Op. cit.*

* *Op. cit.*

but not hinder free movement of the extremity. This requires some judgment and skill, yet is not so difficult as to be beyond the acquirement of an intelligent friend or relative, who can then help the patient to continue his exercises indefinitely after the latter has passed from the physician's daily superintendence.

These exercises exert an effect on the heart and circulation similar to that of the baths, and therefore supplement and re-enforce the balneological treatment. If properly performed, and if the resistance be judiciously apportioned to the patient's endurance, these gymnastics slow the rate and augment the force and volume of the pulse, as has been repeatedly shown by the sphygmograph and sphygmomanometer. Percussion and auscultation reveal the same improvement in the size of the dilated heart and in the character of its sounds as after a bath. Patients not unfrequently comment on their feeling of *euphoria* succeeding this form of treatment; dull præcordial pain, discomfort, or sense of oppression gives place to a condition of ease and lightheartedness. On the other hand, if too great resistance be applied, there is produced a sensation of cardiac distention with variable degree of dyspnoea, while the pulse grows more rapid and feebler. Improved arterial circulation is so manifest a result of these exercises that Dr. Schott has known them to lessen the frequency, nay, even the severity of attacks of angina pectoris in individuals with arterio-sclerosis who had been unable to indulge in even very moderate physical exercise taken in the ordinary ways of walking, etc. Permanent amelioration of the sufferer's condition has been achieved in some of these cases.

REPORT OF CASES.—Between November 1, 1893, and May 1, 1894, nineteen cases of chronic heart disease have been treated by me according to this method, nine males and ten females, classified as follows:

Males.—No. 1. Aged sixty-five years. Insufficiency of mitral valves, marked dilatation of both ventricles, first degree of loss of compensation; moderate and tractable diabetes mellitus.

No. 2. Aged forty-seven years. Insufficiency of mitral valves, compensation slightly disturbed; anæmia; corpulence.

No. 3. Aged forty-four years. Insufficiency of mitral valves due to Graves's disease; cardiac and thyreoid but not ocular signs present.

No. 4. Aged thirty-six years. Idiopathic enlargement of the heart, loss of compensation third degree; great hepatic engorgement, slight œdema about ankles; urine of congestion.

No. 5. Aged fifty-five years. Idiopathic enlargement of the heart, mainly of left ventricle, with murmur of relative mitral insufficiency, second degree of loss of compensation; moderate arterio-sclerosis; no discoverable disease of the kidneys.

No. 6. Aged thirty-nine years. Idiopathic enlargement of the heart with threatened loss of compensation; no discoverable arterio-sclerosis or renal disease.

No. 7. Aged thirty-eight years. Stenosis of the mitral orifice; first degree of loss of compensation.

No. 8. Aged fifty-three years. Idiopathic enlargement of the heart, stage of dilatation; second degree of loss of compensation; chronic interstitial nephritis; hypertrophic sclerosis of the liver; small effusion in right pleural cavity; arrhythmia cordis.

No. 9. Aged sixty-one years. Dilatation and probable degen-

eration of left ventricle with relative mitral insufficiency; first degree of loss of compensation; moderate arterio-sclerosis; chronic bronchitis.

Females.—No. 10. Aged eleven years and six months. Insufficiency of mitral valves, first degree of loss of compensation; passive congestion of liver and spleen; old-standing pleuritic adhesion over the right lower lobe.

No. 11. Aged forty-five years. Stenosis of mitral orifice, first degree of loss of compensation; marked hepatic enlargement from hyperæmia; no discoverable chronic nephritis.

No. 12. Aged twenty-one years. Insufficiency of mitral valves, first degree of loss of compensation; anæmia; chronic gastritis due to congestion.

No. 13. Aged eighteen years. Relative insufficiency of mitral valve with first degree of loss of compensation; chlorosis, hæmoglobin nineteen per cent.

No. 14. Aged twenty-eight years. Insufficiency of mitral valves, compensation threatened; hypochondriasis.

No. 15. Aged twenty-two years. Pronounced stenosis of mitral orifice; first degree of loss of compensation.

No. 16. Aged twenty-five years. Insufficiency of mitral valves due to chronic endocarditis, but intensified by anæmia; first degree of loss of compensation.

No. 17. Aged thirty-four years. Chronic endocarditis of mitral and aortic valves, insufficiency of mitral predominating; stenosis of aortic orifice, preventing free regurgitation; first degree of loss of compensation.

No. 18. Aged fifty-nine years. Idiopathic enlargement of heart, in stage of dilatation; first degree of loss of compensation; moderate arterio-sclerosis; no chronic nephritis demonstrable.

No. 19. Aged thirty-four years. Moderate stenosis of aortic orifice and feebleness of left ventricle; complicating chronic interstitial nephritis; slight œdema of ankles and face.

Of these cases, Nos. 3, 4, 9, 11, 16, and 17 did not for one reason or another complete a full course of treatments. No. 3 discontinued treatment because of its interference with his employment. His baths were taken irregularly and no effect for better or worse could be detected.

No. 4 was obliged to abandon treatments at the end of one week because of marked increase of symptoms due to the fatigue of his daily journey to and from the bathrooms. As this patient persisted in taking long and tiresome walks to the extent of producing great cardiac distress, it is not unreasonable to attribute the aggravation of his symptoms to imprudent exertion rather than to the baths.

No. 9 declared the baths produced some sense of comfort and well being, but he gave them up because of contracting a cold during the inclement weather of November, and his decision therefore to postpone the completion of the course until warm weather.

No. 11 was not amenable to control to the extent of abandoning social pleasures that were manifestly injurious. At first she seemed to experience slight improvement, but subsequently ascites developed and I discontinued the baths.

No. 16 derived such a degree of benefit that at the end of two weeks she suddenly decided to stop all treatment and remove to another city.

No. 17 was obliged for family reasons to leave the city for her distant home at the end of a week. She was so sure that the baths were already beginning to help her that

she left with the full determination of a return for treatment in the early summer.

The remaining thirteen cases have all shown more or less improvement, both on physical examination of the heart and by the sphygmograph. Without exception they have acknowledged the benefit received. Improvement has generally been first noticed by a lessening of dyspnoea on exertion. Cardiac pain and discomfort have likewise been relieved or removed.

No. 8 seemed at the end of three or four weeks to be deriving appreciable amelioration of dyspnoea. His color improved and a sphygmographic tracing showed slight but distinct improvement in the irregularity of the pulse. At the close of six weeks, however, his condition suddenly grew worse, and ascites, which had been a symptom two or three years before, again developed, causing him to reluctantly abandon treatment.

No. 13, the case of mitral regurgitation due to chlorosis, received treatment also by Bland's pills, cathartics, and salol, but without special effect on the chlorosis. Yet such was the relief of her heart symptoms that after the close of the balneological treatments she resumed work as a nurse girl.

Excepting in this case, no general or cardiac tonics were prescribed, cathartics and gastro-intestinal antiseptics only being occasionally ordered *pro re nata*.

Nos. 1, 7, 18, and 19 are under treatment at the present writing.

The following three cases are given in detail:

CASE I.—This is the one numbered 6 in the list given above. This patient, who is a very busy druggist engaged in large business interests, has been a patient of mine ever since March, 1889. There was no history of inflammatory rheumatism or other disease to lead to chronic endocarditis. He was always of high temper, abstained strictly from alcohol and tobacco, acknowledged venereal excess, but without syphilis, and gave history of overstrain of heart and several attacks of partial and complete syncope. There were at that time dilatation of the left ventricle, the apex being situated half an inch outside of left mamillary line, a soft mitral systolic murmur, but no marked enlargement of the right ventricle and no demonstrable engorgement of liver or spleen. Pulse was somewhat accelerated, and at times irregular and intermittent. Urine analysis revealed moderate diminution of water, solids, and urea, a trace of albumin, but no casts. The peripheral arteries were not sclerotic. I regarded it as a case of dilatation of the left ventricle due immediately to strain and the murmur as relative. For the following four years and a half he was under rather fitful treatment and kept at business, although at times with a very intermittent pulse. Last November his heart's action was so feeble and irregular in time, as well as force and volume, that I decided to submit him to a trial of the Schott method. Since then he has taken two seven-weeks' courses of the baths and kept up daily gymnastics.

November 6, 1893.—Examination of heart: Apex beat, fifth interspace, a little outside nipple line; epigastric pulsation slight; right border two inches from right sternal margin; total transverse diameter, seven inches and three eighths; slight hepatic enlargement from passive hyperæmia; soft mitral systolic

murmur transmitted to middle of axilla; accented second aortic and prolonged second pulmonary sound; in dorsal decubitus murmur rather replaces the feeble first sound.

At the end of a week of baths the patient states there is increased urination.

December 11th.—Patient is delighted with the baths and declares he is better. Yet if there is any improvement I am surprised, for he is constantly subjected to physical and mental strain and the worry of great business and family perplexities.

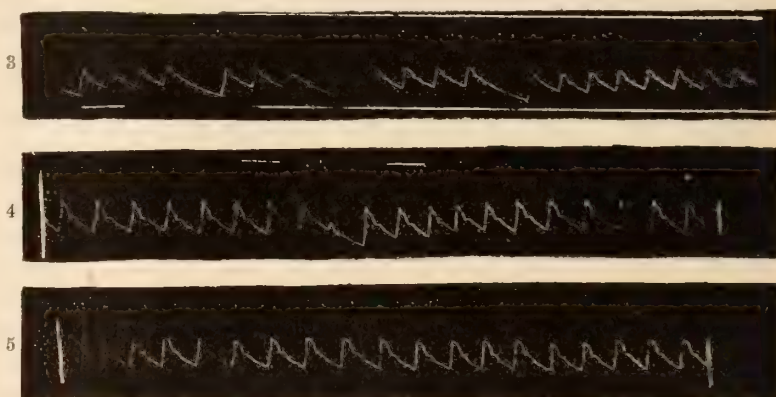
January 5, 1894.—Pulse not intermittent and patient asserts he would not know he had a heart. Apex beat in fifth interspace, nipple line, fairly strong and rather thrusting; dullness on right side deep, as determined by auscultatory percussion, an inch to right of sternum; superficial limit normal; mitral systolic murmur scarcely audible, and first sound beginning to have more of the muscular element; second aortic sound much stronger than second pulmonary.

24th.—Pulse again irregular and somewhat intermittent, but the first heart sound is of fairly good strength and the murmur scarcely audible. Although not in quite as good condition as when he stopped the first course of baths, the heart is still in far better condition than three months ago.

March 31st.—Pulse regular, 77, and at the end of a minute there was only an intimation of a skip.

May 4th.—Pulse not intermittent, fairly regular in force and volume; apex beat of fair strength, a quarter of an inch to left of nipple, and auscultatory percussion shows deep cardiac dullness to extend an inch and three eighths to right of sternum.

Patient denies any cardiac symptoms. Although the heart measures less transversely, particularly at the right, than in November, 1893, it is more dilated than at the end of the patient's second course of baths. Considering this man's willful and persistent overtaxation of his weakened and perhaps degenerated heart, I am greatly gratified by the results obtained. Of the sphygmographic tracings here appended, No. 3 was taken



December 4, 1893, after the patient had taken four weeks of baths. No. 4 was taken March 9, 1894, just before his bath, toward the end of his second course of balneological treatment, and No. 5 half an hour later, immediately following the bath.

CASE II.—No. 10 of the list of cases. Patient first examined October 13, 1893; female, aged between eleven and twelve years; very thin, small of stature; Irish-American; history of diphtheria at seven, followed by scarlatina, two attacks of chorea, repeated attacks of inflammatory rheumatism; very ill last spring with "swelling of ankles"; is troubled with weakness and palpitations; subject to cough, but none at present; anorexia; bowels regular, sleep poor.

Physical Examination.—Pulse, 140, weak, small, and uneven; chest small and shoulders droop forward; noticeable fullness of right posterior base and left anterior base of thorax,

so that the longest diameter is from right infrascapular to left mammary region. Slight dullness of right infrascapular region and still slighter impairment of left infrascapular region. Respiratory sounds, vesicular on right side with few pleuritic exudation râles at the base behind, and in the left infraclavicular region breath sounds are distinctly puerile. Heart: Apex beat in sixth interspace half an inch outside of left mamillary line; a diffused, heaving impulse from fifth to seventh interspaces; short thrill at apex becoming distinctly presystolic in the dorsal decubitus; slight epigastric pulsation; deep cardiac dullness extends from an inch and three eighths to right of sternum transversely to three inches to left of sternum: both sounds distinct, second at apex split and second pulmonary reduplicated and ringing; a rasping rather short murmur over sternum that is transmitted to left; posteriorly a murmur that is distinctly systolic; but anteriorly the murmur not synchronous apparently with either sound; murmur loudest over mid-sternum; in dorsal decubitus murmur becomes loud at apex and seems to follow second sound; sounds and murmur at apex have a rolling rhythm. Lower hepatic border rounded and not tender, plainly felt an inch or more below the costal arch; splenic dullness also increased.

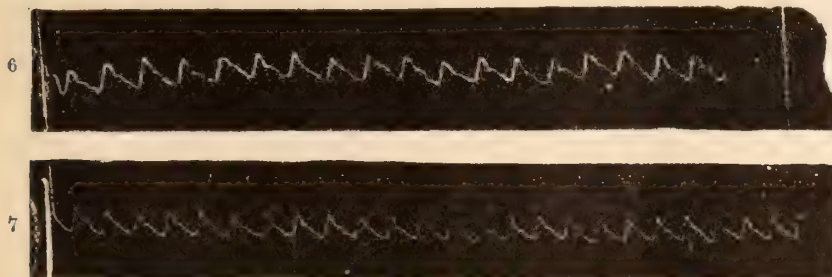
The tachycardia was such as to make a positive interpretation of the cardiac bruits rather difficult; but I felt sure of the existence of insufficiency of the mitral valves. The harsh murmur over the body of the sternum seemed to me diastolic.

Baths were advised, and about a month subsequently they were begun and kept up regularly for seven weeks, notwithstanding the often inclement weather and the necessity of the patient's journeying forty miles by rail to and fro.

November 23, 1893.—Total transverse cardiac dullness four inches and three eighths; right border an inch and three eighths from midsternal line, and apex beat half an inch outside of left nipple, in sixth interspace and diffused.

December 11th.—Baths are agreeing with the patient; she sleeps well, has a good appetite, her color is improved, and her mother thinks she has gained some in weight; heart's action less rapid, impulse strong, and pulse more regular in force and volume.

January 13, 1894.—Apex in sixth interspace, nipple line; impulse less diffused, and rate 105; right border of heart on auscultatory percussion an inch from midsternal line; murmurs, plainly a blowing diastolic over body of sternum, and loud mitral systolic, with short, rough presystolic murmur. The patient had gained nine pounds in weight, and showed greatly improved color of lips and cheeks.



The annexed sphygmographic tracings are indicative of the improvement. No. 6, taken November 24, 1893, the day she began her baths, shows by its respiratory curves the dyspnoea, all trace of which has disappeared in No. 7, taken at the close of treatment.

A letter from her father of May 3d contains the following statement of her condition during the winter:

"Nellie's condition at present is not very good. She contracted a cold a few days ago and it settled on one lung. At present she is feeling very poorly and no appetite, but up to that time she got along very nicely and was going to school up to last Friday. I called in Dr. S. to see her Monday; he said one of her lungs was filled, but thought the condition of her heart was greatly improved. He hadn't examined her since she took your treatment."

CASE III.—This patient, No. 12 of the preceding list, consulted me January 17, 1894, with the view to trying the Schott method. She was twenty-two years of age, tall, slender; a Norwegian; assisted her mother in attention to their store customers; family history negative; patient had measles in early childhood, scarlatina at eleven, subacute rheumatism of right knee three years ago, and repeated one year ago; first noticed shortness of breath two years ago; examined by me a year ago, at which time I diagnosed stenosis of mitral orifice; is musical and sings a good deal, being troubled with palpitation of the heart if she holds a sustained note; has præcordial pain and sensation of "heart being in the throat" when exercising; appetite good; bowels and menses regular; no œdema and no renal disease.

Physical Examination.—Præcordium somewhat bulging; apex beat in fifth interspace on left mamillary line, strong, and preceded by prolonged thrill; epigastric pulsation. Auscultatory percussion showed deep limit of right ventricle at the level

of the fourth sternocostal articulation was an inch and seven eighths to the right of the right margin of the sternum; and from this point dullness extended to the left, a transverse distance of five inches and three eighths to the line of the nipple. The lower hepatic border reached two fingerbreadths below the costal arch, and splenic dullness extended upward to the level of the upper border of the eighth rib in the midaxillary line. On auscultation, the first sound at the apex was short and thumping, second sound feeble; and immediately after the second sound a loud, rough murmur began and remained audible until the next succeeding first sound; this presystolic murmur was not propagated to the left, and no systolic murmur was anywhere or at any time audible. In repose the pulse was 75, very small and tense, but regular. The diagnosis, then, of uncomplicated stenosis of the *ostium venosum sinistrum* was confirmed, there being slight loss of compensation.

She commenced treatment five days later, and in all took seven weeks of baths and gymnastics; took no medicine and attended as usual to her duties in the shop. March 6th occurs the following entry: No baths since March 2d; salt fish for supper that evening caused indigestion; at midnight cardiac palpitation, cough, and dyspnoea. Border of right ventricle seven eighths of an inch to right of sternum; apex strong and strong epigastric pulsation.

April 3d.—At close of balneological treatment patient declared she had lost her præcordial pain and distress on exertion, and indeed was not troubled with dyspnoea on ordinary exercise. Examination of heart corroborated the retraction of right ventricle noted in March.

The annexed tracings (Nos. 8 and 9) show the improvement in the character of the pulse and explain themselves. The first was taken before, the second after, the course of baths.

The baths exerted no appreciable effect upon the cardiac murmur, but a fair degree of compensatory hypertrophy of the right ventricle became established. The patient expressed herself as much pleased with the results.

In conclusion, I desire to speak briefly of the contraindications to this form of treatment. There can be no doubt of its dangers in degenerative changes of the blood vessels and myocardium, such as aneurysm and advanced arterio-sclerosis, acute softening and great fatty degeneration of the heart. In these conditions rupture might result from heightened intravascular and intracardiac pressure.

Furthermore, the query has been made as to whether chronic interstitial nephritis is not also a contraindication on account mainly of the danger of setting up acute inflammation of the kidneys. It might be urged, in the second place, that the increased vascular tension produced could prove disastrous by augmenting the heightened arterial tension already existing.

To the former objection I can reply that when Dr. Schott was questioned on this point, he stated he did not consider chronic interstitial nephritis a contraindication to the baths. It would seem as if the stimulating action on the skin of the salts and carbonic acid rendered the effect on the kidneys different from that of a bath in plain water at the same low temperatures.

As regards the dangerous augmentation of existing vascular tension to the extent of either rupture of a blood-vessel or of stretching the cavity of the left ventricle, I would suggest that such baths would not be administered so long as the hypertrophied heart was adequate to the peripheral resistance to be overcome. They would be given only when the cardiac energy was threatening to fail or had actually failed. Under such circumstances the only thing that could preserve the patient would be a restoration of the heart's power. This might be possible if the heart walls were not too degenerated and the kidneys not greatly contracted. Moreover, if the baths in question bring about even a slight degree of dilatation of the internal vessels, then the peripheral resistance would be lessened rather than increased; and if the circulation was thereby improved, so likewise would be the action of the kidneys.

In the case of great cardiac dilatation associated with chronic interstitial nephritis (Case VIII), the patient was in such a grave condition from cardiac weakness that the treatment was undertaken as a *dernier ressort* after the patient had been made acquainted with the possibilities for evil and warned that benefit was not likely.

It is a question for discussion as to whether or not the return of his ascites was directly due to the baths. Acute nephritis was not set up.

The two following urine analyses, in the case of the

female patient with chronic interstitial nephritis and aortic stenosis, are of interest as bearing on the effect of these cool baths on damaged kidneys. The first was made two or three weeks before she began the baths and the other, May 21st, was during her fourth week of baths, when she was getting a temperature of 89° F. for fifteen minutes. Nitrogenous food is now practically eliminated from her dietary, which was not the case before she came under my charge.

Analyses.

	First.	Second.
Specific gravity	1.009	1.015
Reaction	Faintly acid.	Acid.
Albumin	Small amount, one fortieth by weight.	A trace.
Sugar	None.	None.
Urea	3½ grains to the ounce.	7.2 grains to the ounce.
Epithelia		Vaginal and renal.
Casts	Few medium-sized hyaline, one partly granular.	Few medium-sized granular.

VENETIAN BUILDING, CHICAGO.

THE DIFFERENTIAL DIAGNOSIS OF TRAUMATIC INTRACRANIAL LESIONS.

By CHARLES PHELPS, M. D.,

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(Continued from page 582.)

CASE LIII. *Symptoms.*—Hæmatoma in left parietal region; coma; stertor; no response to external irritation; pupils widely dilated; pulse full, slow, and strong; temperature on admission, 99°, and rose steadily to 107.8°; respiration, 32, 46, 14; pulse, 62, 70, 126. Death in four hours and three quarters.

Lesions.—Coronal suture separated and fracture continued into anterior part of middle fossa on both sides; general hyperæmia with well-marked but not excessive œdema, and some punctate extravasations.

CASE LIV. *Symptoms.*—Consciousness lost but partially restored on arrival of ambulance; large hæmatoma in right posterior occipital region; slight epistaxis; pupils moderately contracted; respiration shallow; right radial pulse after two hours more frequent than the left—84 and 74, 114 and 110; temperature on admission, 96°; in two hours, 95°; in six hours normal, and rose to 100.4° before death in nine hours.

Lesions.—Separation of coronal suture on the left side and fracture continued through middle fossa, sella turcica, right middle fossa, right petrous portion, and posterior fossa, to foramen magnum; large epidural clot in left temporal region; slight cerebral œdema; old meningeal adhesions, and small white nodules in the pia.

CASE LV. *Symptoms.*—Consciousness retained for fifteen minutes after admission; then delirious four hours; afterward consciousness lost; contusion of right side of head; hæmorrhage from left ear and nose, and hæmatemesis; slight dilatation of right pupil; temperature on admission, 101°, and rose to 103°; pulse, 90 to 108; respiration, 22, 24. Death in ten hours.

Lesions.—Linear fracture extended from right squamous portion through body of sphenoid and both middle fossæ into left temporal bone; a second fissure extended from sphenoid into cribriform plate; large epidural clot in left middle fossa; marked general hyperæmia.

CASE LVI. *Symptoms*.—Delirium which continued till final unconsciousness at the close of life; wound in left temporal region; hæmorrhage from right ear; second day, paralysis of left arm; fourth day, loss of control of urine and fæces; and death in three days and eight hours; temperature on admission, $99^{\circ}+$; rose to 103.2° , declined to 101° , and rose to 106.6° shortly before death; pulse, 90 to 114; respiration, 18 to 28.

Lesions.—Linear fracture extending from outer part of right petrous portion, through body of sphenoid bone into its left lesser wing; epidural hæmorrhage in left middle fossa; large pial hæmorrhage over right temporal and parietal lobes, especially profuse near the vertex; general hyperæmia with minute coagula; thrombus in each lateral sinus.

CASE LVII. *Symptoms*.—Consciousness lost, partially recovered after admission; articulation imperfect; alcoholic condition; small wound in right occipital region; active delirium a few hours later; alternations of delirium and stupor till death, sixteen days afterward; temperature, pulse, and respiration normal from second to fourth day; temperature varied from 99.4° to 104.8° and was 103° at time of last observation; pulse, 112 to 144; respiration, 26 to 44.

Lesions.—Fracture extending from right of foramen magnum, three inches and a half, into the left inferior occipital fossa; laceration of inferior surface of both frontal and left temporo-sphenoidal lobes; pial hæmorrhage over right occipital lobe; general subarachnoid serous effusion.

CASE LVIII. *Symptoms*.—Coma which lasted for a few hours; wound in occipital region; no general symptoms noted till seventh day, when sudden recurrence of coma and death; temperature second, third, and fourth days, 100.4° to 99.4° ; after second coma, 104° ; pulse and respiration normal.

Lesions.—Fracture through right middle fossa, involving petrous portion; laceration of inferior surface of right frontal and temporo-sphenoidal lobes; arachnoid hæmorrhage over almost entire surface of right cerebrum; clot in the substance of the right centrum ovale.

CASE LIX. *Symptoms*.—Momentary unconsciousness; contusion of left eye and wound of left frontal region; epistaxis without perceptible injury of the nose; second day, delirium at intervals, becoming constant through the night; third day, somnolence, restlessness, and delirium characterized by delusions; at close of the fourth day delirium became muttering and respiration stertorous. Death in four days and a half. Temperature on admission, 99.8° ; on the second day, 104.8° , 102° , 100° , 103° , 101.8° ; on the third day, 103.6° , 103.4° ; on the fourth day, $103^{\circ}+$, 106.6° ; on the fifth day, 107° , 108.2° . Pulse till end of fourth day, 82, 56, 90, 106; respiration, 19, 34, 24, 40.

Lesions.—Fracture beginning at left external angular process of frontal bone, comminuting orbital plate, extending into body of sphenoid, and, after bifurcation, terminating in the cribriform plate and in squamous portion of right temporal bone; two lacerations of inferior surface of left frontal lobe—one near its center as large as a hickory nut, containing disintegrated clot and brain tissue, the other smaller and more superficial, encroaching upon the middle portion of the Sylvian fissure; two other slight lacerations existed upon the inner border of right occipital lobe; slight subarachnoid serous effusion upon upper surface of cerebellum; general hyperæmia with some minute coagula.

CASE LX. *Symptoms*.—Consciousness not lost, but delirium continuous from time of injury till final coma; contusion behind left ear; very slight dilatation of pupils; delirium became violent; at the end of two or three hours the patient became aphasic; he could utter single words correctly, or a number of words in succession, each correct in itself, but strung together

without sense or logical sequence, as "water—father—when," or "Jesus—now—who." He also connected fragments of words with each other, as "en—is—other," meaning when is mother; or "J—mother," for Jesus, mother; or "J—ter," for Jesus, water; sometimes "ter—J," for water, Jesus. The clew to these fragmentary words and sentences was found in the words he constantly used singly. The aberrations of speech, like the delirium, continued till final coma, and were constant. On the second day his head was extended, but without cervical rigidity; he was restless and irritable; the pupils were still normal; urine was retained; coma and stertor supervened, and death occurred thirty-seven hours and a half after admission. The temperature on admission was 100.2° , rose progressively in twenty hours to 105.2° , remained stationary for twelve hours, and again rose progressively to 108.6° . One hour post mortem it was 110° . The pulse constantly increased in frequency from 90 to 190. The respiration did not exceed 24 for thirty-two hours, after which it was from 40 to 50.

Lesions.—Fracture extending from the left superior occipital fossa, through the posterior condyloid foramen, into the foramen magnum; epidural hæmorrhage, slight over the occipital lobes and more abundant in the inferior occipital fossæ; cortical hæmorrhage in central part of anterior fossæ and over sella turcica; thrombi in left lateral and superior petrosal sinuses; posterior meningeal veins, including those of larger size, greatly distended; some opacity of arachnoid and subarachnoid serous effusion over right occipital lobe. Lacerations were confined to the base, except in case of left temporo-sphenoidal lobe. The first left temporal convolution was lacerated through the whole thickness of its cortex for a length of an inch and a half, which included the second and part of its third fifths, estimated from its anterior extremity, and its middle portion involved the second convolution. This laceration was limited to the exact width of the two convolutions and was covered by the unruptured arachnoid. A small and deep laceration existed upon the inferior surface of this lobe, and another, small and shallower, was situated at its tip, involving all three of its convolutions. A similar slight laceration occurred at the anterior extremity of the right temporo-sphenoidal lobe, including the second and third convolutions. There was an extensive laceration of the under surface of the left frontal lobe, extending from its anterior border to the optic chiasm and from the median line outward through the first and second into the third orbital convolution; it disintegrated the cortex and the subcortex to a considerable depth, and the resultant hæmorrhage had broken through into the arachnoid cavity. There was finally a small contusion about the center of the inferior surface of the right frontal lobe. The brain substance was generally hyperæmic with minute thromboses, and a small amount of reddish serum occupied the lateral ventricles.

CASE LXI. *Symptoms*.—No evidence of brain lesion on admission, twenty-four hours after injury, except right radial pulsation was fuller and stronger than the left; followed by delirium, with delusions, after sixteen hours, which, with the unsymmetrical pulse, persisted for five days. On the sixth day, mind clear, memory restored, general headache; later, delirium at intervals, aimless inclination to get out of bed, increasing difficulty of articulation, progressive mental impairment; control of bladder and rectum lost. On the twenty-fifth day, condition quiet, weaker, picking at the bedclothes. Twenty-sixth and twenty-seventh days, delirium, irritability, great sensitiveness to external disturbances, unconsciousness. Death occurred on the twenty-eighth day. Temperature on admission, 102° ; second and third days, 103° , 104.4° ; from this time it was usually 99° to $99^{\circ}+$, sometimes normal, occasionally 100° , until the last eighteen hours, when it suddenly rose to 105° , and, with slight

recessions, finally reached 108°. Pulse, 84 to 54, till the last four days, when it exceeded 100; but in the last twelve hours, with the highest temperatures, it ranged from 70 to 54. Respiration was accelerated on the second and third days, but at other times was normal till within a few hours of death. Right axillary temperature the day before death was from 0.2° to 1.2° higher than the left. Temperature one hour post mortem, 108°.

Lesions.—Open fissure extended from beneath torcular Herophili, downward and slightly outward, to a point near the left margin of the foramen magnum, where it subdivided to inclose a quadrangular depression of bone three quarters of an inch by half an inch in its diameters; it was then continued between the posterior border of the petrous portion and the basilar process of the occipital bone, where it terminated. No external evidences of injury; small epidural hæmorrhage on either side of median line at commencement of fracture; two thin laminar spots of epidural clot, each about half an inch in diameter, firmly attached to the dura over anterior part of the left frontal lobe, from *contre-coup*; corresponding blood stains upon the surface of the bone, but under surface of dura not discolored; large subarachnoid serous effusion over the vertex; meningeal hyperæmia, but not of the cerebral surface. Four lacerations of the antero superior surface of the left prefrontal lobe, with contusion of intermediate cortex, the whole covering a space an inch and a half in diameter; another laceration of small size a short distance behind them; small laceration upon the anterior part of the external surface of the right frontal lobe; these lacerations all extended into the subcortical substance and were partially filled with necrotic tissue; the adjacent brain substance was unaltered. Marked general œdema and hyperæmia, with moderate number of punctate extravasations and minute thrombi; brain of normal consistence.

Immediate microscopic examination afforded no evidence of inflammatory action, except in contiguity to the necrotic tissue. The quadrangular osseous depression was firmly fixed, but there was no osseous deposit.

CASE LXII. Symptoms.—No history; walking case; semi-consciousness, but without speech or comprehension of speech then or afterward; hæmorrhage from left ear, and œdema of the left mastoid region; pupils normal; early delirium; sensitiveness to external irritation; retention of urine. Second day, entire unconsciousness; convulsive movements of the limbs; Cheyne Stokes respiration; accumulation of mucus in the trachea and bronchi, and death in forty-two hours. Temperature on admission, 101.6°; in twenty-four hours, 103.2°; in twenty-seven hours and till death, 108.6°; one hour post mortem, 108°. Pulse, 64 to 50; second day, 140 to 168. Respiration normal, 24, 16, 20.

Lesions.—Hæmatoma in left occipital region; linear fracture through left occipital bone, from median line and along the groove for the lateral sinus, across the petrous portion by a wide fissure, and separating the dorsum ephippii from the sphenoid bone; thrombus in left lateral sinus; complete disintegration of the right frontal lobe to within half an inch of the fissure of Sylvius and quite to the anterior border of the corpus striatum; deep laceration of greater part of the inferior surface of the left temporo-sphenoidal and a smaller laceration in the center of the inferior surface of the right temporo-sphenoidal lobe; cortical hæmorrhage from the frontal laceration filled all the basic fossæ except the outer part of the left anterior, and one clot in the median line anteriorly was as large as a mandarin orange; it also covered with a thin coagulum the superior and lateral surfaces of the whole right and greater part of the left hemispheres, and extended over the superior surface of the cerebellum; general hyperæmia, with a few minute coagula; minute extravasa-

tions in the center of the pons, the largest of which was about the size of a robin shot.

CASE LXIII. Symptoms.—Primary unconsciousness, followed by mental hebetude and mild delirium, which continued till death; occasional dysphagia in second week, sometimes extreme. Temperature on admission, 99.2°, rose in two hours to 102°, and was afterward 99° to 100° and 101°. Pulse on admission, 50; below 90 for eight days; afterward exceeded 100. Respiration normal. Death occurred in fourteen days, and was immediately preceded by extreme dyspnoea and dysphagia.

Lesions.—Fracture through left occipital, from median line to petrous portion of temporal bone; extensive laceration of antero-superior and inferior surfaces of left frontal lobe; cortical hæmorrhage covered with a thin clot the entire left hemisphere and posterior half of the right, and filled all the basic fossæ.

CASE LXIV. Symptoms.—Contusion in occipital region, and recurrent hæmorrhage from left ear; violent delirium after thirty-six hours; right radial pulse fuller and stronger than the left on the third and fourth days. Temperature on admission, 98.4°, rose in twelve hours to 102°, and afterward varied from 98.5° to 100°+ in the morning, and from 99.5° to 100.8° in the evening; last observation, six hours ante mortem, 101.6°. Pulse and respiration were practically normal. Death in ten days.

Lesions.—Fracture through posterior part of left parietal into petrous portion of temporal bone; transverse laceration across inferior surface of right frontal lobe at junction of its anterior and middle thirds; subcortical, except at outer extremity, where hæmorrhage had broken through the surface; small laceration of anterior fourth of second right temporal convolution, mainly subcortical; cortical hæmorrhage in right middle and posterior fossæ, and to a small amount in right anterior fossa; moderate general hyperæmia, with a few minute coagula.

CASE LXV. Symptoms.—Consciousness lost and partially restored; persistent occipital pain; admission to hospital four days later; stupor merging in final unconsciousness; loss of control of bladder and rectum; right radial pulse fuller and stronger than the left, but difference not strongly marked; pupils normal; temperature on admission 100°; normal, with exception of eight hours on the seventh day, when it was 99.2° to 99.4°, till ten hours ante mortem; final temperatures 99.2° to 103.8°; pulse, 45 to 80; respiration, 14 to 18. Death in ten days.

Lesions.—Hæmatoma in left occipital region, mainly upon left side; biparietal and left parieto-occipital sutures loosened but not separated; small laceration on under surface of right frontal lobe anteriorly; cortical hæmorrhage covered the whole lateral and superior surfaces of both hemispheres, except in left lower parietal region, extended into median fissure and beneath tentorium over superior surface of cerebellum, and occupied both anterior and both middle fossæ. The effusion was thin, except at the base and over the frontal lobes, where the clot was thick, firm, black, and closely adherent to the cortex, and could be traced into the frontal laceration from which it originated. A still smaller laceration existed upon the inferior surface of the right temporo-sphenoidal lobe. The brain was moderately hyperæmic and very œdematous in its cerebral portion. There were no punctate extravasations, few minute coagula, and no inflammatory products.

CASE LXVI. Symptoms.—Complete unconsciousness, which continued till death; hæmorrhage from nose and mouth; pupils contracted and immovable, but in a few hours the left became dilated; some convulsive movements of the right arm; retention of urine; second day, ecchymosis of both eyes and subconjunctival hæmorrhage in the right; continued dilatation of

the left pupil; right normal; temperature on admission 101°; in four hours, 102°; in sixteen hours, 105°, and in twenty-four hours, 106°; pulse and respiration frequent throughout. Death in twenty-six hours.

Lesions.—Extravasation of blood into the substance of left temporal muscle disclosed by incision; open fissure extended from squamous portion of right temporal bone across both orbital plates and intervening cribriform plate of the ethmoid, broke off left lesser wing of the sphenoid, crossed left middle fossa and petrous portion, and terminated in left margin of foramen magnum; epidural clot occupied the whole right anterior fossa, and another of smaller size existed in the left middle fossa; a thrombus filled the posterior part of the superior longitudinal sinus; cortical hæmorrhage over superior surface of the cerebellum, derived from a small laceration of its lateral border; small pial hæmorrhages over left parietal and temporo-sphenoidal lobes, and a larger one over right parietal lobe; large subcortical laceration of left temporo-sphenoidal lobe, excavating its substance beneath the second, third, and anterior portion of first convolutions, which did not reach the surface; moderate general hyperæmia more marked in the pons and cerebellum.

CASE LXVII. Symptoms.—Patient walked two miles to the hospital gate and was carried unconscious to the ward; ecchymosis of right eye and wide dilatation of right pupil, slight contraction of the left; no motor or sensory disturbances; left brachial pulsation full and strong, the right very small and weak; same conditions existed in the radial arteries, but the contrast somewhat obscured by contusion of the left wrist; temperature on admission, 98°; four hours later, 104·6°; immediately after death, 105°; half an hour post mortem, 105·4°; pulse, 40 to 64; respiration, 32 to 36; cyanotic just before death, at the end of five hours.

Lesions.—Contusion of scalp, disclosed by incision, extending from coronal suture backward above the temporal ridge; fracture in right middle fossa, involving both squamous portion of temporal and greater wing of the sphenoid bone; firm epidural clot from laceration of anterior branch of the arteria meningea media, measuring three fluidounces, which filled the right middle fossa and flattened the temporal lobe laterally and inferiorly. When the clot was removed the brain retained its position, widely separated from the base, and leaving the anterior petrous surface and the adjacent middle fossa exposed. The smaller superficial veins and arterioles of the brain were congested and the surface between them, at first pale, was soon uniformly reddened. There was a small laceration of the posterior part of the third left temporal convolution; another somewhat smaller than a buckshot was found in the anterior part of the pons at the apposition of the longitudinal fibers. The brain substance was generally hyperæmic, especially in the left hemisphere, but without minute extravasations or thrombi. The surfaces of section soon became deeply reddened and bathed in watery effusion.

CASE LXVIII. Symptoms.—Partial unconsciousness; recurrent hæmorrhage from right ear, succeeded by a flow of serous fluid; vomiting; dilatation of both pupils; retention of urine; greater fullness and strength of left radial pulse than of the right; mental condition normal; intercurrent bronchitis on the third day, which ran its usual course; from the second day a peculiar dusky and swollen appearance of the face, which continued till within two or three days of death; no other indications of cerebral injury till the fourteenth day, when there was occipital pain, which became general headache, and a little later somnolence and occasional irritability. On the eighteenth day, the fifth of this epoch, posterior cervical rigidity; delirium; temperature at its maximum; tenderness along the course of the larger nerves of the left lower extremity from the twentieth

to the twenty-fifth days; delirium more active, lucid intervals less frequent, somnolence more continuous, and sense of hearing impaired; deafness progressive till complete power of articulation gradually lost, and finally communication only possible by gesture; dysphagia occurred more suddenly and a little later. The mental condition varied from normal to that of stupor or delirium; emaciation was progressive; paralysis and hyperæsthesia of the left lower extremity were of late occurrence; recurrence of posterior cervical rigidity was once noted, but was transitory; toward the end control of urine and fæces was lost; during the last twelve hours unconsciousness was complete, and respiration rapid, insufficient, and entirely nasal. Death occurred on the thirty-first day. The temperature on admission was 97°, became normal in four hours, and was afterward 99° till the invasion of bronchitis, on the third day, when it rose to 103°, and subsided with recovery from the complication. On the tenth day it again rose with the recurrence of intracranial symptoms to 103·4°, and afterward varied from 100° to 104°, and was not often less than 101°+. The post-mortem temperature receded in half an hour from 103·4° to 103°. The axillary temperatures, carefully recorded from the sixth day, were symmetrical in nearly half the observations, and in the others usually varied two tenths of a degree, and were rather more frequently higher on the right side. The pulse was usually from 64 to 90. The respiration, always frequent, was rarely less than 30 in the minute from the time of admission.

Lesions.—No external injury; linear fracture extending from squamous, through petrous portion of right temporal bone; simple thrombosis of lateral sinuses from torcular Herophili into jugular veins; punctate extravasations in pia mater; large occipital veins distended; no serous effusion at the vertex; but patches of false membrane mainly upon left frontal lobe, and upon either side of the median fissure. Several ounces of turbid serous effusion at the base, and a large amount in the lateral ventricles; fibrinous exudation covering the pons, medulla, and inferior surface of the cerebellum, one to two millimetres in thickness, and in the Sylvian fissures; limited contusion of posterior part of the surface of the right temporo-sphenoidal lobe, covering a space an inch square, which was of a yellowish color and studded with hard miliary hæmorrhages; fornix much softened, and brain substance generally hyperæmic and œdematous.

Immediate microscopic examination showed the membranous effusion to be crowded with small round cells which extended for some distance in diminishing quantity into the substance of the underlying cerebellum. Other portions of the brain tissue were unchanged. The *Streptococcus pyogenes* was developed from cultures of the exudation.

CASE LXIX. Symptoms.—Consciousness lost, but restored at time of admission; hæmatoma over right frontal region; vomiting; severe frontal headache; face flushed; pupils normal; temperature, 95°; pulse, 90; respiration, 20. One hour later, wide dilatation of right pupil, and right cornea more sensitive than the left; sudden unconsciousness, followed by rigidity of the left side, and convulsive movements of the right. At the end of an hour and a half, temperature, 97°; pulse, 85, and Cheyne-Stokes respiration. Death in three hours from time of injury.

Lesions.—Linear fracture in squamous portion of right temporal, continued through anterior part of middle fossa, and terminated in the body of sphenoid bone; large epidural hæmorrhage over lateral surface of the right hemisphere nearly to the median fissure; blood partially coagulated and derived from posterior division of the arteria meningea media; surface of the right temporal and anterior part of the right occipital lobe somewhat flattened; slight contusion of left second tem-

poral convolution; brain moderately hyperæmic and oedematous.

CASE LXX. Symptoms.—Gunshot wound, immediate unconsciousness; rapid and feeble pulse; sighing respiration; profuse hæmorrhage from wounds of entrance and exit. Death within an hour.

Lesions.—Gunshot fracture of right frontal bone through temporal fossa; ball grazed the outer and posterior part of the orbital plate and fractured the right lesser wing of the sphenoid, grooved the inferior surface of both frontal lobes just anterior to the fissures of Sylvius, destroying the cortex and subcortex for a space three fourths of an inch in width, and emerged through the left temporal fossa at a little higher level than the point of entrance. The vertex and base were fissured from the point of exit, and the coronal and biparietal sutures divulsed and widely separated. The whole surface of the brain was covered by a thin subarachnoid hæmorrhage which was partly cortical and partly pial. The brain substance generally was markedly hyperæmic and its minute vessels filled with coagula. The corpora striata and optic thalami, especially the striata, were much contused, their substance studded with punctate extravasations, and their vessels distended with thrombi. The pons, medulla, and cerebellum were but slightly altered.

CASE LXXI. Symptoms.—Coma; stertor; pulse strong and irregular; respiration slow; slight dilatation of both pupils, which were insensitive; slight twitching of both arms; extremities cold; no external evidence of injury; temperature, 94.2° to 101.2° ; respiration, 24, 20, 14; pulse, 42 to 52. Death in eleven hours.

Lesions.—Linear fracture extended from just above and behind right ear into the posterior inferior fossa; enormous epidural hæmorrhage, derived from the posterior division of the middle meningeal artery, which compressed the right hemisphere; slight laceration of the right parietal lobe, posterior to the fissure of Rolando.

CASE LXXII. Symptoms.—Unconsciousness, which continued till death; contusions and superficial wounds of the left side of the face and temporal region; dilatation of both pupils, of the right more than of the left; hæmorrhage from mouth, nose, and right ear; relaxed muscles, and imperceptible pulse at the wrist. Death occurred five minutes after admission, and in about an hour after reception of injury.

Lesions.—Hæmatoma over left temporal, both parietal, and right occipital regions, from rupture of the intracranial vessels; calvarium crushed on the left side anteriorly, and its fragments deeply depressed and distorted; zygoma and both orbital plates comminuted; body of the sphenoid bone disintegrated, and the base of the skull extensively fissured; thin pial hæmorrhage covered the entire brain, possibly augmented by some cortical effusion at the base; limited contusions confined to the cortex about the right parieto-frontal junction and along the right side of the median fissure; cortical lacerations upon the inferior surface of the left frontal lobe and at the tip of the left temporo-sphenoidal lobe; brain substance generally hyperæmic and oedematous, with a few punctate extravasations.

CASE LXXIII. Symptoms.—Patient was found in the early morning, sitting in a chair, in which he was said to have passed the night. He would not reply to questions, from seeming lack of comprehension. He could walk, though he had little control over his limbs; his face was pale and showed traces of vomiting. On admission, there was partial consciousness, right hemiplegia and hemianæsthesia; dilatation of left pupil and contraction of the right; loss of control of urine and fæces; profuse serous discharge from both ears, and slight oedema of the lungs. Two hours later coma was complete and oedema of the lungs had increased. Death occurred in ten hours. Tem-

perature on admission, 99.2° ; in two hours, 101.2° ; in four hours, 103° ; in six hours, 103.4° ; in nine hours, 103.8° ; in ten hours, when *in articulo mortis*, 104° ; thirty minutes post mortem, 106° . The right axillary temperature was 0.2° higher than the left at each observation. Pulse, 90 to 108; respiration, 36, 30, 38.

Lesions.—Slight hæmatoma over right parietal region disclosed by incision; fracture extending from right of occipital tuber, across petrous portion, into greater wing of sphenoid; opacity of arachnoid in right frontal and anterior parietal regions; small cortical hæmorrhage over frontal lobes; extensive laceration of the frontal, temporal, and inferior portion of parietal lobes on the left side; these parts were excavated and filled with a dark solid clot which was extruded in large quantity through a long tear made in the process of removal of the brain from the cranial cavity; slight ante-mortem cortical rupture through which a little blood had escaped into the middle fossa and ascended upon the frontal region, and another into the posterior cornu of the lateral ventricle, through which the choroid plexus was infiltrated; small, deep laceration upon the anterior border of the left cerebellum; moderate general hyperæmia and marked oedema, with a few punctate extravasations; thrombi in the superior longitudinal and lateral sinuses.

CASE LXXIV. Symptoms.—Pistol-shot wound through right temporal fossa; cutaneous opening small and circular; consciousness permanently lost; pupils dilated, the right slightly the larger; left corneal reflex absent; urine retained; some pulmonary oedema; temperature on admission, 96.4° , and from 96.8° to 96° for five hours, then declined to 95.6° ; pulse on admission, 85, subsequently from 94 to 80; respiration on admission 14, for an hour and a half 12, in two hours and a half 10, in three hours 8, in four hours and a half 6, in five hours 4, and *in articulo mortis*, a few moments later, 2. Cardiac action continued three minutes after respiration ceased.

Lesions.—Ball entered the cranial cavity, severing the trunk of the middle meningeal artery, passed through the third right temporal convolution, and was lodged in the posterior part of the inner border of the right temporo-sphenoidal lobe. A small piece of bone, driven in advance of the ball, was found between the right lateral columns of the medulla. A large arachnoid clot, probably in part epidural and in part cortical, filled the middle fossa, spread over the whole right hemisphere, and thickly covered the pons and medulla. Hyperæmia of the right hemisphere and basic ganglia was of considerable intensity.

CASE LXXV. Symptoms.—Fell down a flight of stairs; still unconscious on admission; wound in left occipito parietal region; hæmorrhage from left ear; right pupil irresponsive and widely dilated, left pupil moderately dilated; muscular system relaxed; temperature on admission 95° and in an hour normal; rose progressively to 104.2° ; right axillary temperature uniformly from 0.2° to 0.4° higher than the left till the last observation, when the difference was 2° ; respiration 22 to 24; pulse on admission 72, irregular and intermittent, and afterward 78 to 86 till immediately before death, which occurred in eight hours and a half.

Lesions.—Fracture which extended from the left inferior occipital curved line through petrous portion into sella turcica; laceration, two inches long by an inch wide, of the inferior surface of the left temporo-sphenoidal lobe; another, half an inch in diameter, at the anterior extremity of the first left temporal convolution; and a third upon the inferior surface of the right frontal lobe, which involved its anterior half; cortical hæmorrhage filled right anterior and both middle fossæ, covered the right hemisphere laterally, and extended as a thick clot over the right frontal lobe and along the corpus callosum quite to the cerebellum; some small extravasations in the substance of

the pons; general hyperæmia and punctate extravasations in the anterior and posterior portions of the brain.

CASE LXXVI. Symptoms.—Coma; stertor; left pupil dilated; small wound and larger hæmatoma in left parietal region; sensation diminished in both lower extremities and muscular twitching in the right; vomiting; pulse 52. After trephination a soft epidural clot was discovered and a considerable loss of blood ensued. Using as a guide a fissure which extended through the squamous and petrous portions into the middle fossa, the bone was chiseled and the posterior division of the middle meningeal artery, which was found to be the source of hæmorrhage, was clamped. The pulse increased in frequency to 72 to 104, the pupils became normal, but consciousness was not restored, and death occurred a few hours later.

Lesions as above.

CASE LXXVII. Symptoms.—Unconsciousness and death immediately after admission.

Lesions.—Skull crushed and flattened on right side; fragments very movable; comminuted on the left side; extensive laceration of the brain posteriorly in the left hemisphere; only small superficial wounds of the scalp.

CASE LXXVIII. Symptoms.—Coma; stertor; hæmorrhage from left ear; contusion of left parietal region; pupils dilated; pulse full and slow; temperature on admission 98°, and rose progressively to 103.6° at time of death in four hours; no decrease for one hour post mortem; respiration 18 to 26; pulse on admission 70 and rose to 90.

Lesions.—Fissure extended from left parietal eminence, through squamous and petrous portions into middle fossa; deep laceration of inferior surface of right temporo sphenoidal lobe and of lateral border of right cerebellum; cortical hæmorrhage filled right middle fossa; hyperæmia of the right side of brain.

CASE LXXIX. Symptoms.—Consciousness lost and not regained; coma grew more profound; slight œdema of scalp in right temporal region; pupils slightly dilated; great restlessness and irritability; lack of urinary control; temperature on admission 100.4° and rose to 108°, with only two or three brief fractional recessions; pulse, 94, 58, 80; respiration, 28 to 24. Death in forty-three hours.

Lesions.—Hæmatoma over whole right side of the head; linear fracture from right frontal through parietal bone into the inferior occipital fossa; large epidural clot over the whole base on the right side, extending upward over the lateral surface of the brain; laceration of the inferior surface of both temporo-sphenoidal and both occipital lobes; laceration of the inferior surface of both frontal lobes in their anterior portion, very extensive on the left side; cortical hæmorrhage over posterior border of the cerebellum; extensive general hyperæmia with punctate extravasations.

CASE LXXX. Symptoms.—None; patient found dead.

Lesions.—Large lacerated pistol-shot wound in right temporal region; temporal muscles burned and disintegrated for some distance from the cutaneous opening. The ball passed through both frontal lobes, comminuted both orbital and intervening cribriform plates, and emerged through left temporal fossa. The calvarium was separated from the supraorbital ridges and broken into large loose fragments in its anterior portion.

CASE LXXXI. Symptoms.—Large hæmatoma over left frontal region; epistaxis and hæmatemesis; simple fissure from left frontal eminence into the orbital plate disclosed by incision. On the sixth day, muscular twitching of the whole right side, including the extremities, but not the face, which ceased entirely in fourteen hours and was followed by left hemiplegia and hemianæsthesia. On the seventh day a convulsion, confined for thirty minutes to the right side but afterward becom-

ing general, occurred two hours before death. Temperature on admission was 100.2°, rose to 104.4° on the same day, and to 105.6° on the next, with recessions, and afterward varied from 102° to 105.2°, with no observation for six hours ante mortem. Pulse on admission was 120, and subsequently 130 to 152. Respiration 26 on admission, and later 44 to 58.

Lesions.—Fracture extended from the orbit through posterior part of the ethmoid and body and right lesser wing of the sphenoid into the floor of the right middle fossa; general subarachnoid purulent effusion most marked in the left frontal region below the site of fracture.

CASE LXXXII. Symptoms.—Conscious on admission; Cheyne-Stokes respiration; dilatation of left pupil; right radial pulse fuller and stronger than the left; hæmatoma on the right side of the head anterior to the occipital junction, and small lacerated wounds over both frontal eminences; muscular contractions of left side, and later of both sides of the body. On admission, temperature, 99.3°; pulse, 104, and respiration, 19.

Lesions.—Multiple fracture; fissure across frontal bone above the orbits, extending on either side through the parietal bone to the median line of the vertex on both sides, thence to the occiput, and on the right side behind the ear to within an inch of the foramen magnum; another fissure on the left side extended through the orbital plate of the frontal and lesser wing of the sphenoid into the middle fossa. The dura and pia were lacerated from right mastoid region to a point just beyond the median line. The right motor area was extensively lacerated, and the right optic thalamus and corpus striatum to a lesser extent. The left hemisphere was uninjured.

CASE LXXXIII. Symptoms.—Suicidal gunshot wound; ball entered just below right ear and in front of the mastoid process, and was lodged in the petrous portion of the temporal bone; removed on the following day; delirium and rise of temperature on the sixth day, flexion of the right leg on the thigh on the eighth day, and death on the fourteenth day.

Lesions.—Fracture of anterior surface of the right petrous portion, epidural and arachnoid hæmorrhage at that point, pial hæmorrhage over left occipital lobe and left motor area, and laceration of the temporo-sphenoidal lobe at the site of fracture.

CASE LXXXIV. Symptoms.—Suicidal wound through the anterior cervical region; ball of 0.38 caliber entered in median line over the larynx; no hæmorrhage from the wound or mouth; immediate partial aphonia; deglutition of liquids only possible and with difficulty; hæmorrhage from left ear. On the third day, deglutition impossible and mental condition stupid; followed by delirium requiring mechanical restraint on the fourth day, and on the fifth day, by paresis of right arm, hand, and lower extremity, and loss of fecal and urinary control, with some improvement in voice and power of deglutition. On the sixth day there was added right facial paralysis with ptosis; the right pupil was dilated and the left contracted, and the urine was controlled. The temperature on admission was 100°, rose on the second day to 101°, on the third day to 102.4°, and on the fourth day to 103.6°; later it attained an elevation of 107.6°. The pulse was from 70 to 86 till the fourth day, when it rose to 132. The respiration was normal for four days and became frequent only at a late period. Death occurred on the seventeenth day.

Lesions.—Bullet was lodged in the apex of the left petrous portion; small fragment of bone driven upward about an eighth of an inch; no lacerations; large pial hæmorrhage, in greatest amount over left fissure of Rolando; large subarachnoid serous effusion.

CASE LXXXV. Symptoms.—Primary and permanent unconsciousness; wound above right superciliary ridge; ecchy-

miosis of both eyes; stertor; hæmorrhage from mouth, nose, and both ears; left pupil dilated, the right contracted, and both insensitive, and fibrillar twitching of the right chest muscles. No paralysis or muscular rigidity. The temperature on admission was 99.4°; pulse, 120, full and strong, and the respiration 13; the temperature rose to 99.6°, and the respiration was reduced to 4. Death occurred in twenty minutes; immediate post-mortem decline in temperature.

Lesions.—Extensive comminuted fracture of frontal bone and both frontal plates extending through the middle fossæ into the petrous portions; the left optic nerve was crushed by a fragment of bone in the optic foramen. The inferior surface of both frontal lobes was deeply lacerated over its whole extent, and a cortical hæmorrhage, still fluid, occupied all the basic fossæ, and covered the pons and medulla.

CASE LXXXVI. *Symptoms.*—Primary and permanent complete unconsciousness; hæmorrhage from left nostril; dilatation of both pupils; no convulsions or muscular rigidity; respiration not more than four to five in the minute at any time after the receipt of injury and finally not more than one; pulse continued full, strong, and of normal frequency for some moments after respiration ceased. Death in forty-five minutes.

Lesions.—Fracture extending through left side of the base into middle fossa; moderate pial hæmorrhage covering whole surface of the brain, vertex, and base, and also the medulla; marked general hyperæmia and œdema; contusion of under surface of left temporo-sphenoidal and frontal lobes.

CASE LXXXVII. *Symptoms.*—Primary and permanent unconsciousness; stertor; dilatation of the pupils; loss of urinary and faecal control, and pulmonary œdema; left radial pulsation fuller and stronger than the right; no external injury. Temperature, 104° to 104.8°; pulse, 120 to 166; respiration, 24 to 52. Death in four hours and a half.

Lesions.—Fracture extending into both occipital fossæ, and a fissure from *contre-coup* in the right middle fossa; large epidural hæmorrhage from *contre-coup* over right frontal region; complete excavation of right frontal lobe with rupture of inferior cortex and consequent cortical hæmorrhage over superior surface of whole right hemisphere and left frontal lobe; contusion of third left temporo-sphenoidal convolution and small extravasation into center of the pons; general hyperæmia.

(To be continued.)

FIVE YEARS' WORK IN DISEASES OF THE RECTUM AT THE NEW YORK POST-GRADUATE HOSPITAL. BY CHARLES B. KELSEY, M.D.

THE total number of cases treated has been seven hundred and ninety-six. These are divided as follows: Hæmorrhoids, 267; fistula, 107; non-malignant ulceration and stricture, 84; fissure, 55; cancer, 49; pruritus, 42; prolapse, 35; abscess, 34; polypus, 20; malformations, 6; pelvic abscess, 8; faecal incontinence, 7. The remainder includes all the various forms of disease which find their way to such a clinic, from uterine disease to chronic constipation.

The operations before the class have been as follows: Hæmorrhoids, 137; fistula, 63; fissure, 33; abscess, 23; colotomy, 40; extirpation, 24; ulcers, 25; prolapse, 25; polypus, 15; pruritus, 9; proctotomy for stricture, 8; faecal incontinence, 5; proctocele and cervix uteri, 5; intussus-

ception, 1; pelvic abscess, 3; congenital malformations, 3; recto-vaginal fistula, 1; total, 418.

Leaving all of the minor cases with the simple statement that all hæmorrhoids are still operated upon by the clamp and cautery method because we have yet to find any other plan we like as well, and that we are still waiting to see any of the bad results which Allingham asserts are inseparable from this method, or any of the failures to cure which Whitehead says can not possibly be avoided, we pass at once to the consideration of the cases of stricture and incurable ulceration, for the study of which the clinic has thus far offered such exceptional advantages.

Of these we have shown and examined ninety-nine. Forty-nine have been malignant and fifty non-malignant. Sixty-four have been in males and thirty-five in females. In the last year's report attention was called to the fact that our experience here did not support the usually accepted statement that this disease was nearly twice as common in females as in males; and this fact becomes still more noticeable as the number of cases increases. •

As to the nature of the non-malignant cases, four were of dysenteric origin. In them, as a rule, the amount of ulceration is far in excess of the amount of contraction. There is distinct stricture, it is true, but the symptoms of that condition are not as prominent as the discharge of pus and bloody mucus, the tenesmus and wasting away which characterize the ulceration.

Six were congenital and six were due to pressure from without or obliteration of the gut from diseases not primarily of the gut itself. One was distinctly tubercular in character. This leaves thirty-three out of fifty to be accounted for, and all of these are of the kind generally included under the head of syphilitic, although in only six of them was there any syphilitic history, and in only a single case am I convinced that syphilis had anything to do with the pathology. That particular case was a child suffering from well-marked *estheomène* or lupus. For a time she improved greatly under specific treatment, though a few weeks ago her physician told me the improvement had ceased and the disease had taken on the usual incurable character.

Instead of attributing the thirty-two other cases to syphilis and to some pathological process of which we know nothing connected with that disease, I prefer to consider them the result of a simple proctitis, proliferating and contracting in its results, which may be set up by any local injury to the part, and which, once having passed the early stages, is practically incurable. Anything which causes an abrasion of the mucous membrane may cause a stricture of this variety if the abrasion goes on to ulceration and the ulceration is not cured by proper local treatment.

Again and again we have this history forced upon our attention, and it will in time be allowed its proper weight with all those who are not so overawed by the mass of authority in favor of the syphilitic idea that evidence to the contrary has no influence upon them. Constipation and faecal impaction, surgical operations, injury to the rectum in childbirth are some of the everyday causes of the so-called syphilitic stricture, both in those who have had and

those who have not had syphilis. Every practitioner has seen these simple lesions cause stricture of the rectum a few years later if he has watched the development of his cases. How many men have ever seen syphilis cause stricture? I do not mean how many have seen well-developed strictures and have jumped to the conclusion that they were syphilitic. Where in the body do we find any analogous syphilitic process? Neither in the air-passages nor the œsophagus, for here when we find syphilitic stricture we find contraction from cicatrices resulting from syphilitic ulceration. The deposit which causes stricture in the rectum is not gummatous either under the microscope or in its clinical history, and the name ano-rectal syphiloma, which has covered it as an all-sufficient explanation for years, has come to express nothing.

The writer does not wish to be misunderstood in this matter.

Syphilis may cause a stricture of the rectum by causing an ulceration of the mucous membrane exactly as a surgical injury or a scybalous mass may do, and in no other way. I have seen such syphilitic ulceration, and had it not promptly yielded to local and specific treatment I have no doubt that it would have caused a stricture exactly as it would have done in the œsophagus.

That syphilis has any connection or relation with stricture of the rectum except in this way we have no particle of proof. That the so-called syphilitic stricture, both in syphilitic and non-syphilitic patients, may be caused by any local injury we have daily evidence.

Of these ninety-nine strictures, forty have been treated by colotomy, twenty-four by extirpation, and eight by division.

Of the forty colotomies three have died. This statement left without explanation would give a very exaggerated idea of the mortality of the operation. Only one of the deaths was in any way due to the operation, and that one was a pure accident, and might easily have been avoided—indeed, should have been.

The first death was caused as follows: The patient, a woman, was in the midst of complete intestinal obstruction from cancerous disease. The pelvis and abdomen were full of cancerous masses, and after the incision was made it was with some difficulty that a healthy piece of sigmoid flexure and mesentery could be found in which to make the opening. After thirty-six hours the patient had a chill and high temperature and the symptoms of shock. The gut was opened, the parts found in good condition, but the opening of the bowel gave no relief, nor did any quantity of gas or fæces escape, which, considering the distended state of the abdomen, was considered remarkable. Death followed in a few hours, and upon autopsy the obstruction was found to be unrelieved. A cancerous nodule existed at the splenic flexure of the colon, which had almost completely closed the caliber. Against this there was pressing a small, hard fæcal mass acting as a perfect ball-valve, which had caused death.

The second death was in no way due to the operation. The case was one of acute phlegmonous periproctitis following the division of a stricture. After the patient was

exhausted by the disease and at the point of death a communication formed between the rectum and bladder. To do away with this additional cause of danger a colotomy was performed, but without retarding the inevitable result of the disease.

We then had a run of twenty-four successive cases without accident, and the next and last death was directly due to the operation.

The patient, as usual suffering from cancer, was in excellent condition and a favorable prognosis was given. On the second night after the operation the bandages were found soaked in serum, which had wet them through and was soaking into the bed. All night the patient was allowed to remain in this condition before the wound was examined, and I was sent for. Then it was found that many feet of small gut had escaped through the incision and were lying under the dressings. The gut was partially strangulated, deeply congested, all of the coils were matted together by plastic exudation, and the dressing of gauze was so firmly adherent to the protruding mass that an hour's careful dissection was necessary for its removal. By the time the parts had been replaced the patient was in a condition of fatal shock. This is the only case of colotomy, either in private or hospital practice, in which I consider that death could fairly be attributed to the operation. In private practice in two or three cases death has not been delayed by the operation, but in none has it been hastened.

I report this case fully as a warning. The same accident has happened before and may again, but it should never be a fatal one, and would not be if discovered early and properly managed. Sudden and profuse discharge of a large amount of serum from the abdomen after colotomy is a sign that some part of the wound has given way, and should lead to immediate removal of the dressings for inspection. If hernia be found, it is an easy matter to reduce it, and a stitch or two in the wound will keep it reduced.

From the twenty-four operations for extirpation of the rectum there have been seven deaths.

The more experience we have with this operation the more convinced are we that the rate of mortality depends chiefly upon the technique. Of course, the cases for operation must be carefully chosen. In non-malignant stricture the extent of the disease is seldom or never such as to contraindicate extirpation. In cancer the disease must be movable. In other words, no matter what its distance from the anus and no matter what length of gut is involved, the disease must be confined to the gut, and must not have invaded adjacent parts, otherwise attempt at removal is unjustifiable.

The comparison of these statistics with those of other operators is difficult because of the absence of details in the published reports. My own cases are simply twenty-four consecutive ones, in all of which it seemed possible before commencing to completely remove the disease, and the mortality is about that of the German clinics. Had the severe cases been subjected to colotomy and the mild ones extirpated the mortality would have been less and the recurrences also less. It would be possible to do the opera-

tion twenty-four times without any mortality and with few or no recurrences within the limit of five years, but the cases would need to be carefully selected ones of epithelioma confined to a small portion of the gut and removed early.

My own experience has taught me rather to expect recovery without serious accident in a clean and antiseptic Kraske's operation when the upper end of the gut is well vitalized at the point of section and is brought out behind and stitched to the skin at the part left vacant by the removal of the end of the sacrum. Union soon takes place; fæces escape on the surface of the body and do not contaminate the wound, which may be expected to heal in part by primary union; and the patient makes a rapid recovery without high temperature.

This operation is, however, not the ideal one. The disease is removed, it is true, and the great object of operating is thus accomplished; but the after condition of the patient is not as good as after a colotomy.

It may be safely asserted that if a patient is to have an artificial anus anywhere, the best place for it is in the left inguinal region and not over the sacrum.

One great element in the mortality at this clinic has been the repeated attempts not only to remove the disease, but to put the parts in the same condition as before the operation, by uniting the divided ends of the gut and replacing the trap door formed by cutting across the sacrum. When we fail in the attempt to get immediate union of the ends of the gut the wound becomes fouled with fæces, there is suppuration, great exhaustion, and prolonged high temperature, and the patient barely escapes with life.

Attempt at immediate union of the ends of the gut should never be made unless the upper end be well vitalized and well supplied with mesentery. Where the disease has involved the upper rectum, and where after opening the peritonæum it has been necessary to dissect off and divide the mesorectum to a considerable extent to bring the gut down, it will often be found that when the gut is finally cut across above the disease all precautions against bleeding from the proximal end are unnecessary. The circulation has been so interfered with by ligatures placed upon the mesentery that the cut surface has not sufficient blood supply to bleed. Or, in non-malignant stricture, when the same section is made above the constriction the proximal end will be found infiltrated, lardaceous, grayish in color, and with few vessels. It is not to be expected in such cases that good union will take place between this end and the anal portion, no matter what particular form of apposition is effected, and the proximal end under these circumstances should simply be turned out behind and sutured to the skin, care being taken if possible to cut off enough so that healthy gut is reached without too great traction.

This condition has more than once prevented our doing what is so well advised by Gerster—twisting the gut to prevent incontinence. We have feared to still further obstruct a very feeble blood supply.

It being decided that an attempt at uniting the ends of the gut is justifiable, we have the choice of three ways—the

Murphy button, end-to-end suture, and suture after invagination of the upper into the anal extremity. The proper application of the button requires that a considerable portion of the anal end of the gut has been left after removal of the stricture. It is also to be remembered that there is no peritoneal covering to the ends of the gut which assists so greatly in union within the peritoneal cavity. For this reason the ends should be well scarified where they are to come into contact when the halves of the button are pressed together, and the union should be further strengthened by a row of sutures.

In spite of all this one of our own fatal cases was due to sloughing of the upper end and extravasation of fæces into the wound.

Between end to end suture and suture after invagination the operator may choose for himself. The latter is much quicker and easier. Both will occasionally succeed and often fail, and when they fail a life will perhaps be lost which might have been saved for a time by the simpler operation of bringing the upper end of the gut out behind.

I am convinced that it is in great measure upon these points in technique as well as upon the selection of the cases that the mortality of the operation at present depends; and that the success and failures of the future will depend upon the results of careful practice and experiment along this line.

One other practical point has been forced upon the writer's attention.

In cancer of the rectum any kind of anus which may result is justifiable and desirable provided the growth can be removed. But in non-malignant stricture, as it often presents itself, especially in the old cases of so-called syphilitic stricture, the future of the operation of excision depends entirely upon the ability not only to remove the disease but to put the parts after the operation in something like the natural condition.

I do not contend for perfect fæcal control, for the patients do not have that before the operation; but they must at least be left better off after the operation than before it, and better off than they would be after colotomy to compensate for the great additional risk of one operation over the other.

It is a difficult matter to choose between the comparative discomforts of an average case of old stricture; the condition following extirpation, where the gut is brought out over the sacrum or the patient is left with two openings, both discharging fæces, one the natural one and the other somewhere else near it, generally called a fæcal fistula; and the condition following colotomy. Unless the conditions following extirpation in these cases can be made much better than those which follow colotomy, the operation will soon be crowded aside and we shall return to where we were a few years ago, with the only choice between colotomy, on the one hand, and proctotomy or dilatation on the other.

There is certainly no operation connected with the surgery of the rectum in which practice and skilful technique have so great a bearing upon the results.

OPEN SECTION FOR IRREDUCIBLE DISLOCATION AT THE SHOULDER JOINT.

By W. N. KEENER, M. D.,
JAMESPORT, MO.

G. M., aged about twenty-two years, very muscular, while attempting to mount an unruly horse, on June 10, 1894, sustained a dislocation of the head of the humerus. I saw him an hour or two after the accident, and learned that his father and two other able-bodied men had been trying with all their might to reduce it with the heel in the axilla. As it seemed to be an ordinary downward and forward dislocation, I expected no trouble, sat him on the floor, and undertook to reduce it by manipulation. To my surprise and chagrin I failed. After a thorough trial of this method, I called to my assistance two strong men, and, without going into details, I think we tried all known methods of reduction without success. It was my first failure in such a case, and I cast about for some explanation for my failure. I had seen but one irreducible shoulder-joint dislocation, and that was in the clinic of Professor Moses Gunn, of Chicago, in 1884. Professor Gunn explained it by saying that the head of the humerus had slipped through a button-hole slit in the capsular ligament, instead of rupturing the fibers of that ligament in the usual way. He applied sufficient force with a system of pulleys to rupture the capsular ligament, then reduction was easy. It required a great deal of force, and the patient died in about two days, as it was said, from pneumonia. Of course, this explanation and this treatment were the first to suggest themselves to me. Remembering the great force required, however, I feared injury to some of the important structures about the shoulder joint or axilla. In the face of these fears, and the additional fact that, in the light of modern aseptic surgery, joints may be safely opened, I decided that, if reduction was impossible under an anæsthetic, I would make an open section. The patient being thoroughly prepared and anæsthetized, another attempt at reduction was made and proved unsuccessful; so an incision was made over the pectoralis major, which, being drawn downward, revealed the head of the bone deep between the pectoralis major and minor. The capsule was not ruptured, but seemed to be pushed before the head of the bone, while, closely hugging the anatomical neck, both anteriorly and posteriorly, were large, firm, cordlike bundles of fibers re-enforcing the ligament proper. The anterior was the heavier of the two. Both their humeral and scapular attachments were so close together that they were drawn very tense, and any attempt at reduction only seemed to draw them tighter.

These were both divided with a scalpel, and the bone went easily into place. The wound was closed and sealed with collodion, and healed by first intention. The joint seems to be as good as ever. The patient gives a history of a dislocation of the same joint when a child. Could that account for the peculiar conditions?

TUBERCULAR MENINGITIS.*

By STEPHEN J. MAHER, M. D. (YALE),
NEW HAVEN, CONN.

THIS army of tubercle bacilli encompassing the base of the brain of a dead child is an ugly fact, as ugly as any that our end-of-the-century medicine has to face. How did the bacilli get inside of the child's skull? I have said

that they were a secondary development, that they must have been hibernating in some other part of the little one's body—that is, in the lungs, in the bones, or in the bronchial, or tracheal, or mesenteric glands. This is the explanation adopted by practically all modern medical authorities, as applicable to the great majority of cases of tubercular meningitis. But as to the question, Is tubercular meningitis ever a primary tubercular lesion? there is considerable diversity of opinion. Osler rather guardedly says, in his *Practice of Medicine*, that "in a few instances the disease seems to be primary in the meninges." P. Simon, of Nancy, last year went over this subject somewhat exhaustively in the *Revue mensuelle des maladies de l'enfance*. He is strongly of opinion that save for a possible case in which injury to the ethmoidal foramina in the upper air-passages might give inspired bacilli present in the nasal secretions immediate access to the interior of the cranium, tubercular meningitis is always a secondary development. In twenty-seven complete autopsies in cases of tubercular meningitis that he reports, he found old tubercular lesions in twenty-five cases. He quotes Orth as maintaining that there is a distinct relation of cause and effect between caseous deposits and the later development of tubercular meningitis. Reider, in the *Münchener medicinische Wochenschrift* of December, 1889, reports thirty-two cases of tubercular meningitis in almost all of which the disease was consequent to another tubercular affection.

By what avenues do the bacilli go from the cheesy nodules throughout the body to the meninges? By the blood current. The peculiar distribution of meningeal tubercle and the researches of Weigert are the proof of this answer.

It is impossible to say in every case what agency it was that disturbed the cheesy masses of the body and caused them to send out their pestiferous colonies to settle in the meninges. Sometimes it seems to be the debility following whooping-cough or measles that lights up the smoldering tubercular processes. Sometimes it is trauma. Dr. Clinton, of Leeds, a few years ago read before the British Medical Association an interesting paper on the medico-legal aspect of the tubercular meningitis occurring in children after slight injury to the head; for instance, after being struck on the head by their schoolmasters.

There are some stumbling-blocks in the way of too fine theorizing in this matter. For instance, a case reported to the Royal Academy of Medicine of Ireland by Dr. Bewlett would seem to show some contradiction of several points in the modern doctrine. The doctor, according to the *Lancet* of June 11, 1892, showed to the academy a spinal cord from a case of chronic internal tubercular pachymeningitis. The disease had lasted four years, causing complete loss of motion and partial loss of sensation in the legs. At first there had been marked inco-ordination with increased reflexes, but afterward the reflexes culminated in permanent rigidity. Four years after the paralysis showed itself, the spine became curved, the tenth dorsal spine becoming prominent. This singular curvature became rather more marked. Finally the patient died of tubercular meningitis. At the post-mortem examination it was found that the external surface of the dura mater was healthy;

* One of three papers on Meningeal Diseases in Early Life read before the New Haven County Medical Society, October 18, 1894.

the internal surface was thickened. This thickening was most marked in the lower dorsal region, where there was about a sixth of an inch of tough whitish tissue growing from the dura and attached to the arachnoid and pia mater. This tissue thinned off gradually above and below. On microscopic examination this structure was seen to consist of granulation tissue containing giant cells and tubercle bacilli, and in many places had become caseous. This tissue compassed the cord in the lower dorsal region. The cord showed ascending and descending degeneration above and below the point. The ninth, tenth, and eleventh dorsal vertebræ were carious, and there was cerebral tubercular meningitis. The disease had started in the internal surface of the dura mater and the bone disease was secondary. That this was the course of the case is shown by the following facts: 1. The external surface of the dura was healthy; the internal diseased. 2. The spinal disease did not show itself till three years after the paraplegia had become complete. The unsatisfying part of this report is the neglect to state whether or not there was evidence of old tubercularization elsewhere in the body than in the spine.

The question of the ætiology of tubercular meningitis is a somewhat knotty one. It may have occurred to you that not much has been written on the subject by the abler men of the profession. Dr. Landon Carter Gray, however, writes very glibly on the subject in the recently published *American Text book of Diseases of Children*. He says on page 626: "The ætiological factors of tubercular meningitis are heredity, tubercular infection, age, and erythema nodosum. A tubercular heredity produces, of course, the tubercular manifestations in the different organs of the body, but there has never been produced any proof that tubercular meningitis is hereditary except in this general sense." What in the world can the doctor mean by that last sentence?

Well, we have traced our bacilli back to the glands, or bones, or lungs. How did they come there? Dr. Walter Carr reports (*Lancet*, May 12, 1894) on this point, so far as he was able to elucidate it by one hundred and twenty necropsies made at the Victoria Hospital upon children suffering from tubercular lesions. In four cases he could not find any primary lesion. In eleven cases cheesy nodules existed in several widely separated parts of the body, and in these he felt constrained to hold that multiple tuberculous affections might sometimes be altogether independent of one another. In thirteen children the tuberculous mischief was confined to the glands, in seven to the bronchial, in eight to the mesenteric, and in one to both sets. Ninety-two cases are left; of these, the mischief apparently began in or was limited to the bones or joints in seven (including three of middle-ear disease), in forty-seven it commenced in the thoracic glands, in thirteen in the lungs, in eight either in the lungs or the thoracic glands, in six the starting point seemed to be in the intestine, in seven in the mesenteric glands, in two in the cervical glands, and in two in the kidney. Then, as a summing up of all the evidence of clinical and experimental tuberculosis, he holds (1) that a primary lesion in the lungs or intestines means a direct local infection; (2) that bacilli may pass through the lungs

or the internal walls without producing any recognizable lesion, and that they then, at least as a rule, enter the lymphatic vessels and not the blood-vessels; and (3) that a primary tuberculous lesion in the mesenteric or bronchial glands is due usually to bacilli which have entered through the intestine or lung, respectively, and not at some remote point. He holds, further, that the bronchial were more frequently affected than the mesenteric glands, and that therefore the original entrance of the bacilli to the system of children was more frequently through the lungs than through the food tract. This conclusion, though in accord with the researches of Rilliet and Barthez, and Simmonds and Walter Coleman, is opposed by those of Dr. Sims Woodhead, who found in one hundred and twenty seven autopsies of tubercular children that the bronchial glands were caseous in ninety-six cases and the mesenteric in one hundred cases, and the mesenteric alone in fourteen cases. We have now seen that the children who die of tubercular meningitis usually receive the tubercle bacilli in the air that enters their lungs or in the food that enters their stomachs. Are the bacilli never inherited? Osler, in the *American Text-book of Diseases of Children*, puts the answer well: "Current opinion on this point may be expressed as follows: While in a few cases tuberculosis is transmitted directly from parent to offspring, in the great majority of all cases the heredity does not relate to the transmission of the seed, but of a disposition of body, a type of tissue cell favorable to the development of the disease in case of accidental infection."

You have heard an enumeration of the symptoms that are to be found in children who have simple meningitis and in those who have cerebro-spinal meningitis. The symptoms of tubercular meningitis are like unto them. The symptoms of tubercular meningitis vary, as do those of simple and cerebro-spinal meningitis, according to the location and amount of the effusion and the degree of poisoning from the products of the bacteria that cause the inflammation. From the fact that usually tubercular inflammation is situated at the base of the brain, we should expect, and correctly, various and complicated interference with motion and sensation and function of different parts of the body. From the comparatively slow development of tubercle bacilli we would expect, and correctly, that an inflammation produced by them would have longer and more deceptive prodromata than one caused by the pneumococci, for instance.

Usually for a few days or weeks, occasionally months, the mother of the patient notices that it does not look well, is cross or strangely apathetic, and is "losing its appetite." There is little or no fever yet. Then there comes sudden and repeated and unexplainable vomiting, accompanied by rise of temperature and an intense headache and possibly a convulsion. The pain in the head is usually referred to the forehead. Sometimes it is paroxysmal and causes the sufferer to utter sudden loud shrieks, the "hydrocephalic cries" of olden literature. The slightest sounds annoy and there is photophobia. Contracted pupils are the rule; rhachialgia is occasional and constipation usual. The expression is frowning. A quieter period fol-

lows of rather indefinite length. The patient loses the sense of pain. The muscles in the back of the neck contract and the head "bores into the pillow." General or partial convulsions, or stupid delirium, dilating pupils and strabismus, irregular pyrexia and pulse rate, the *tache cérébrale*, patches of erythema, the carinated abdomen, are commonly features of this stage. A rapid pulse, convulsions, dilated pupils, optic neuritis, loss of control of the sphincters, ptosis, a temperature ranging from 93° to 106° F., mixed palsies and paralysis, and more or less profound coma precede death.

From the symptoms produced by the inflammation of the meninges alone it is impossible to say whether a given case of meningitis is tubercular or simple or cerebro-spinal. But there is usually plenty of circumstantial evidence to aid in the diagnosis. A thorough physical examination of the child for evidence of tubercle or injury; the previous history of the patient, with particular reference to the recent occurrence of measles or whooping-cough or any of the debilitating diseases of childhood; the prevalence or absence in the neighborhood of an epidemic of cerebro-spinal meningitis, will be of more assistance than any set of symptoms. It should always be remembered that tubercular meningitis is altogether the most common variety. The physician who, in doubtful cases of meningitis, certifies to death from cerebro-spinal fever not only unreasonably startles the community, but he is very likely to be made uncomfortable by the revelations of the deadhouse.

The prophylaxis of tubercular meningitis is twofold: (1) The prevention of primary tuberculosis; into that subject I can not go. (2) The curing of primary tuberculosis. It is clearly our duty to give serious attention to the cheesy glands of children, however few and slight may be the subjective symptoms to which they give rise, and to use every means at our command, surgical and medical, to snatch our little patients from the fate that threatens them while they carry about with them nests of tubercle bacilli.

As to treatment, if we can not find positive evidence of tubercular deposits elsewhere in the body we should be justified in hoping that it was not the tubercle bacillus, but some less fatal bacterium that had attacked the meninges and was now causing the headache and spasms and delirium or stupor, or whatever symptoms the patient might have; and on that supposition we might resort to somewhat active therapeutics, but not blistering, I hope, and not too much freezing with ice-caps. But if we have tubercular deposits elsewhere in the body and a meningitis of slow development, it is barbarous to torment the dying child. He should be put in a quiet, darkened room, treated symptomatically, and permitted to die in as much peace as is possible under the circumstances. Acting on the theory that it was the compression of the brain by the effusion that was the actual cause of death in tubercular meningitis, many able surgeons have performed operations to relieve the intracranial pressure; but, although they have sometimes given temporary relief from some of the symptoms, in no case have they been successful in saving life or even apparently in prolonging it.

It is inconceivable, according to our present knowledge, that a patient with tubercular meningitis can recover.

Therefore, although several cases of recovery have been reported, the reporters are believed to have made errors of diagnosis. Only when we have discovered an agent that will do for the tubercle bacillus what quinine does for the protozoa of malaria can we hope for the cure of tubercular meningitis. That agent we may have this year or next, or it may be reserved for the twentieth century; but we all feel that it can not for long elude the faithful, heroic search that is now made for it the world over by thousands of the keenest minds and most skillful hands that have ever been vouchsafed to the human kind.

212 ORANGE STREET.

REMARKS AT THE ANNUAL MEETING OF THE NEW YORK SOCIETY FOR THE RELIEF OF WIDOWS AND ORPHANS OF MEDICAL MEN,

November 21, 1894.

By ELLSWORTH ELIOT, A. M., M. D.,
PRESIDENT OF THE SOCIETY.

ALTHOUGH the printed statement of our treasurer, which has been sent to the members, sets forth very fully the present condition of our society, you will not think it improper for your president to mention a few facts which have an important bearing upon its history during the past year.

1. Our membership has increased, but it is not equal to that of 1881, when there were a hundred and forty-nine names on the list. In 1892 it had decreased to a hundred and thirty. By a slight effort we could not only hold our own but make additions annually.

2. We have increased our principal by nearly \$6,000 to \$195,126.03. It would not be easy to find a benevolent society the management of which costs so little as ours—\$107.20.

3. We have succeeded in investing all our funds—a portion thereof at a low rate: four and a half per cent. only; but absolute safety has been the paramount consideration with your standing committee who have this matter in charge. A year ago we had in a trust company \$22,000 at one and a half per cent. Never have we had so little as now—less than \$2,000—most of which, if not all, will be required for the annuities due the first of next January.

4. In the list of benefactors, printed in the annual report of our treasurer, appears the name of Alonzo Clark, whose gift to the society is estimated at \$20,000. By the death of one of his legatees during the past year the society has come into possession of property largely increasing this amount, and in course of time another addition will be made. Probably his gift in time will not be less than \$35,000. Great in his genius, great in his achievements, and great in his generosity was Dr. Clark, his name leading all the rest among our benefactors; nor among the fifty-nine who have given legacies to our mother society in London is there an instance of generosity so large.

5. Several have inquired how our society compares with the London society in numbers, in pensioners, and in

property. By the last report, that society has three hundred and eight members, this being somewhat less than the membership of the previous year. The number of widows relieved was fifty-four, and the number of children nine. Should we have a number proportionately large, it would be necessary to make a large deduction from the annuities now paid. Their property amounts to about \$450,000. As their society is more than a hundred years old, and ours is but little more than fifty, our pecuniary condition can not be unfavorably compared with theirs. Of one thing we can boast: A certain amount is distributed among the members of their board of directors for attending meetings. Our board of managers attend punctually, without pecuniary consideration. A quorum is always present at the appointed hour, so that the business can be expeditiously and in brief time discharged.

6. By an act of the assembly of the State, passed last winter, our society will be enabled to extend its relief to a wider circle than our by-laws now permit. Some alterations in these will probably receive early attention from our board of managers.

LATERAL DECUBITUS AS A CAUSE AND AS A METHOD OF TREATMENT OF LATERAL CURVATURE OF THE SPINE.

By N. WILBUR, M.D.,
FAYETTEVILLE, N. Y.

THE subject of lateral curvature of the spine has always been of some interest to me from the fact that I have suffered from the deformity myself. Some years ago, in thinking about the cause of the curvature in my own case, I concluded that it arose from the habit I had formed of always sleeping on one side. Since that time I have found that all the cases I have seen—three in number—have had this same habit, and from the circumstances in each case I was convinced that this was the cause of the curvature. In all the curvature conformed to the position occupied in bed.

It is only within recent years that lateral decubitus has been recognized as a cause of lateral curvature, and I doubt if its importance has ever been fully appreciated. If inquiry be made, I presume that a large portion of the cases will be found to arise from this cause.

The hips and shoulders are the most prominent parts of the body when viewed laterally, and when a person lies on his side there is a sagging down of the body between these points, and as the dorsal portion of the spine is most flexible, the curvature is most in that region. Place any one on his side and you will see that this position crooks the spine.

The prevailing opinion at the present time is that lateral curvature arises from the maintenance of some one-sided position, and there is no other one-sided position that is kept for so great a portion of the twenty-four hours as this by those that have the habit of sleeping on one side.

The spine, from being always kept in this position at night, *grows* into this curved shape. The intervertebral

discs, the ligaments, muscles, and the bones themselves, according to a law of Nature, become adapted to this position, and any method of treatment that will be effective must be of long continuance so as to allow the spine to *grow* into its normal shape again. The recognition of lateral decubitus as a cause suggests just such a plan of treatment. Persuade the patient to sleep on his other side and he can thereby *grow* straight again. By reversing the position the spine is not simply straightened, but it is bent over in the opposite direction, which is more effective.

This plan of treatment is equally applicable to cases that may be supposed to arise from other causes, and a special reason for its use is found in the fact that patients generally sleep on the side of the higher shoulder, no matter what the starting point of the curvature may have been. The curved position becomes natural to them, and they take it because it is more comfortable whenever relieved from the necessity of maintaining an upright position, as when sitting or standing. I can bear testimony to the peculiar sense of ease and comfort that comes over one with lateral curvature when he assumes his accustomed position. Lateral decubitus may thus be considered a consequence as well as a cause of lateral curvature. Hence we should in all cases inquire if this habit exists, and if it does we must take it into consideration, for it is apparent that no progress can be made toward removing the deformity if we straighten the spine during the day and allow it to be curved at night.

In certain cases, in addition to this treatment by position, the muscles need strengthening by gymnastic exercises and a general tonic course of treatment. This is required when the patient has backache. When there is no lateral curvature but little effort is required of the muscles to balance the body, but after it has occurred, when the individual is in an upright position, the muscles try to hold the spine erect against the tendency of gravity to pull it over still more. If the muscles are unequal to the task the patient will have backache, which thus becomes an indication for gymnastic exercises; but if there is no backache, gymnastic exercises are unnecessary.

The younger the patient the more quickly will the curvature be overcome. Although ossification is not completed in the spinal column till the thirtieth year of age, it is far advanced at twenty, and the most brilliant results will be achieved at or before that age. Yet in middle life this treatment by position will effect something, as I know from my own experience. Till I made use of it, my coats required padding over one shoulder to make them fit; after occupying the other side at night for about three years this padding was no longer needed, and my back became very much stronger, but the curvature is not wholly removed.

I will add a brief account of the three cases mentioned, mainly to show the difficulty in carrying out this treatment:

CASE I.—Two years ago, Miss W., then fifteen years of age, who had always been strong and healthy, had decided curvature of the spine. She presented no symptoms, but wished to be relieved of the deformity. The left shoulder was the higher. She had the habit of sleeping on her left side, with her head

and shoulder resting on a large pillow. She was directed to sleep on her other side, and carry up the right shoulder so as to occupy a similar position to that previously occupied on the left side. With some difficulty she acquired the habit of sleeping on her right side, but the shoulders held the same relative position as before; the right one was still depressed. This was the situation a year after she was first seen, and the deformity, instead of being benefited by the change of position, was rather aggravated. After this she succeeded in carrying up the right shoulder, and thereafter the improvement was rapid. Six months afterward, on a careful examination, no curvature existed.

CASE II.—In October, 1890, Miss C., twenty years of age, consulted me on account of backache and great weariness on exertion. I found lateral curvature of the spine, with the left shoulder one inch higher than the right. She always slept on her right side with her right shoulder depressed, an exceptional position. In fact, she occupied the same position as Case I during the first year of treatment.

Following my directions, she acquired the habit of sleeping on her left side at once, occupying the same relative position as she had previously done on the other side. She forced herself to do this by tying herself in bed so that if she turned on her right side in her sleep she would be awakened. I advised at the same time a course of physical exercises, and gave her the first lesson. She failed to carry out this part of the treatment, but continued to occupy the new position at night.

A year afterward her dressmaker, who had previously been obliged to shape the two sides of her dresses differently, now made them alike, and a teacher of physical culture who examined her class, of which my patient became a member, with a view of adapting her exercises to overcome any deformity that might exist, found no lateral curvature in this young lady.

CASE III.—In May, 1889, I was visiting a patient near Col-lamer, when a neighbor of my patient, Miss W., sixteen years of age, a strong German girl, was brought to me on account of a tumor that was growing over her right shoulder blade. I explained that the tumor was caused by curvature and rotation of the spine. I learned that she always slept on her right side, with her head and shoulder well bolstered up with pillows. I considered this the cause of the deformity, and advised changing her position to the other side. I remember that she gave as a reason for always sleeping on her right side that she could not bear to lie facing the wall.

I heard nothing more from her till August, 1892, when I learned that no attempt had been made to carry out my directions. They were of so simple a nature that they did not impress her and her family as being likely to do any good, and they did not accept my explanation of the tumor. They went to Syracuse and consulted the late Dr. Breed, who confirmed my diagnosis and fitted her with a brace, which, I have no doubt, was well fitted, but it irritated her and she soon laid it aside.

At this time I reiterated my plan of treatment, and an effort was made to carry it out. She would go to sleep on her left side, but invariably found herself on her right side when she awoke, and she finally compromised the matter by sleeping on her back. As she suffers no inconvenience from the curvature, she has concluded to be content with her condition, thinking that if she sleeps on her back it will grow no worse. Had she possessed the same determination as the previous patient, something might have been accomplished.

Changes of Address.—Dr. R. E. La Rue, from Henderson, Ky., to Mound City, Ill.; Dr. Frank N. Lewis, to No. 36 East Thirty-first Street, New York.

THE
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FRANK P. FOSTER, M. D.

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CHLORALOSE IN THE TREATMENT OF NIGHT SWEATS.

NIGHT sweats and sleeplessness, as is well known, are among the more tormenting of the manifestations of chronic pulmonary disease. They are often associated, consequently it is an object to use a remedy capable of overcoming or modifying both of them at the same time. Such a remedy M. J. Sacaze thinks is to be found in chloralose. In an article on the subject published by him in the *Nouveau Montpellier médical* for October 6th he refers to a previous communication of his relating to clinical facts observed in Professor Grasset's service. According to M. Sacaze's observations, in persons affected with an advanced stage of pulmonary consumption the insomnia and the night sweats have disappeared almost completely under the influence of chloralose, and in a few cases the improvement has continued after only a few doses of the remedy had been taken, although as a rule the symptoms have returned when the use of the drug was suspended. In a very small number of cases this action of the drug is very slight, and, indeed, in exceptional cases, far from inducing sleep, it produces excitement and worrying dreams. Exactly why there should be this difference in its action in these cases, the author says is unknown. At all events, it would be rash to conclude from the beneficial action of chloralose in the night sweats of chronic pulmonary disease that it would act also in cases of profuse perspiration due to nervous derangements or to the action of such sudorific drugs as pilocarpine, and perhaps it is because this has been expected of it that some writers, founding their opinions on its failure under such circumstances, have doubted its efficacy as an antidrotic. We do not yet know, says M. Sacaze, whether chloralose controls profuse sweating by a direct action on the sweat glands, or whether it acts through the medium of the nervous centers, but he suggests the possibility that in pulmonary cases it may act by some modification of the phenomena of infection taking place within the lungs. As to this point, however, there are no experimental data on which to base a conclusion.

The author has experimented with chloralose in various diseases, but he has given his chief attention to its action in consumptives, in whom, with some rare exceptions, it has produced great improvement in regard to both the insomnia and the night sweats. In a number of cases of other chronic pulmonary diseases, however, such as chronic bronchitis, with dilatation of the bronchi and foetid secretion, accompanied by profuse sweating, he has found the action of chloralose almost identical with that observed among consumptives, and it seems to have been this observation which led him to the surmise that the remedy might act by virtue of some modification of the infectious processes going on in the lungs.

With regard to the administration of chloralose, in order to avoid toxic effects, the author begins with the use of capsules, each containing three quarters of a grain. One of these capsules is to be taken, and, if at the end of half an hour sleep has not been induced, another may be given, and two more, if necessary, at intervals of half an hour. When the insomnia is very obstinate the dose may be increased to a grain and a half, but not more than four such doses should be given in the course of a single night. Moreover, in such cases it is sometimes advisable to give capsules containing, each, three quarters of a grain of chloralose and from two to three grains of sulphonal, and, if there are febrile movements toward evening, it is well to add a small quantity of quinine. The author has experimented largely with these combinations, and has observed good results from them. As chloralose is almost always given in small doses, he says, it has rarely given rise to accidents, and when these have occurred they have not been of a very serious nature. Moreover, the small size of the dose required admits of the continued use of the remedy for days together, according to the persistence of the symptoms that indicate its employment. Finally, M. Sacaze thinks that chloralose seems worthy to rank with atropine, ergot, and agaric in the treatment of the night sweats of consumptives, and all the more from the fact that it answers two indications at the same time, that of overcoming sleeplessness and that of mitigating the sweating.

THE NEW YORK SOCIETY FOR THE RELIEF OF WIDOWS AND ORPHANS OF MEDICAL MEN.

In no city in the world is mutual aid for medical men so well organized as in New York. The Physicians' Mutual Aid Association offers relief to its members during their lifetime and provides almost immediate financial assistance for their families or dependent relatives after their death, while the Society for the Relief of Widows and Orphans of Medical Men places a member's widow and orphans beyond the possibility of poverty and want. In fact, we may say that we know of no profession or calling that offers such means of relief for those dependent upon its worthy members for so moderate an expenditure as is required by these two societies for physicians.

In another column in this issue of the *Journal* we publish the annual address of the president of the society whose name heads this article. His review of the present status of the society shows a record of which the officers may well be proud. Almost two hundred thousand dollars in assets acquired in fifty-two years! How significant of the care with which the funds have been handled, how worthy a tribute to the many physicians whose donations have increased the capital of the society by more than fifty thousand dollars, how pregnant with good for the widow and the orphan of the future!

It would seem that every reputable physician in New York city should be a member of this society, if not for the sake of the good that it accomplishes, at least for the personal motive of providing for all possible contingencies relating to the welfare of dependent relatives. For it is the purpose of the so-

cieté to so amend its by-laws that it will be possible to afford relief to a father, mother, or sister dependent upon a physician who has not seen fit "to take unto himself a wife." Of the three thousand physicians in this city at least fifteen hundred are eligible for membership in the society, and yet less than ten per cent. of the latter number will include the actual membership. This should not be the case, for no man can feel assured that the estate he may leave will be so well administered that his family will never be reduced to want.

The society does not furnish life insurance, but rather insurance against the possibility of penury and want in those unaccustomed to struggle for a livelihood. For a physician having a family it would seem to be a duty to secure this assurance for his family's welfare, happen what may. We commend this organization to the thoughtful consideration of our readers, and we trust that the coming year will witness a decided increase in the society's membership.

MINOR PARAGRAPHS.

AN AFTER-INCIDENT OF THE HOT SPRINGS MEETING.

In our last issue we alluded to the kindness shown by Mrs. Hay, the wife of the manager of the Arlington Hotel, Hot Springs, to the ladies who accompanied the members of the Mississippi Valley Medical Association on the occasion of its recent meeting in Hot Springs. In recognition of that kindness, some of the ladies sent to Mrs. Hay from St. Louis a present in the shape of a breast-pin. Mrs. Hay now acknowledges the gift in the following terms:

"On November 23d the wheels and flying sparks took from me the most enthusiastic and charming assembly of people it has ever been my good fortune to know, and after many miles lay between us I received an exquisite token—a circular pin—of richest gold with a diamond in the center; its rays showed me plainly the brilliancy of the givers. I thank you many times."

STRANGULATION OF THE PENIS.

In the *Centralblatt für Gynäkologie* for November 24th there is an abstract, by Dr. F. Neugebauer, of an account, contributed to the Russian journal *Akuszorka* by Dr. Korzeniowski, of a case in which a drunken midwife tied a newborn child's penis instead of the umbilical cord. Dr. Neugebauer adds brief statements of two cases of strangulation of the penis by means of women's hair. One was that of a boy affected with nocturnal incontinence of urine who slept in the same bed with an older sister. A cousin paid the family a visit, and she too occupied the same bed. In order that the bed might be kept dry during the night, the girls tied hairs about the little fellow's penis. The other case was one in which a prostitute tied a drunken student's penis with a hair in order to occasion erection. In all three of these cases great swelling and pain followed, and the services of a surgeon were required.

A NEW YORK PHYSICIAN IN PARIS.

THE *Progrès médical* for November 3d recounts that Dr. Lusk, of New York, was present at a recent meeting of the Paris Academy of Medicine and was introduced by the president of that body. The account goes on to speak of Dr. Lusk's appointments in New York and of his great reputation. It

then says that he is an ardent traveler, "in spite of his age." To New Yorkers, to whom Dr. Lusk's youthful appearance is familiar, this will prove amusing. The writer remarks upon the striking resemblance of Dr. Lusk to Professor Cornil. He adds that Dr. Lusk is a true American, and suggests that the learned bodies of France would do themselves an honor by opening their portals to this friend of France and of Paris.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending December 4, 1894:

DISEASES.	Week ending Nov. 27.		Week ending Dec. 4.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	21	3	22	7
Scarlet fever.....	87	7	78	7
Cerebro-spinal meningitis....	1	1	3	1
Measles.....	48	4	60	2
Diphtheria.....	189	57	188	61
Small-pox.....	2	3	16	1
Tuberculosis.....	138	112	99	91

The New York Academy of Medicine.—At the last general meeting, on Thursday evening, the 6th inst., a paper entitled *The Treatment of Diphtheria, including Serum Therapy*, was to be read by Dr. H. W. Berg.

At the next meeting of the Section in General Surgery, on Monday evening, the 10th inst., a paper entitled *Cases of Appendicitis Treated by the Inch-and-a-Half Incision*, will be read by Dr. R. T. Morris, and patients will be presented by Dr. Wyeth, Dr. Kammerer, and Dr. Morris. Instruments and pathological specimens will be exhibited.

At the next meeting of the Section in Genito-urinary Surgery, on Tuesday evening, the 11th inst., a paper on *Further Experience in the Effort of Simultaneous Ligation of Both Internal Iliac Arteries for Hypertrophy of the Prostate Gland* will be read by Dr. Willy Meyer; also one on *Extreme Dilatation in the Treatment of Urethral Stricture and Chronic Urethral Discharges*, by Dr. J. B. Tuttle. Dr. B. E. Vaughan will present a Case of Hypertrophy of the Testicle, resulting from an Operation for the Radical Cure of Varicocele. There will be in addition an exhibition of pathological specimens and of instruments.

At the next meeting of the Section in Pædiatrics, on Thursday evening, the 13th inst., the following subjects will be discussed: Typhoid Fever in Children; its Pathology and Occurrence, by Dr. W. P. Northrup; Enteric Fever in Children and Infants; a Clinical Study, by Dr. W. L. Stowell; their Treatment and Management, by Dr. Henry D. Chapin.

The Seton Hospital for Consumptives, at Spuyten Duyvel, having two hundred beds, will be opened for patients early in January. Dr. J. West Roosevelt is the physician in chief. The institution is not designed for the reception of persons hopelessly advanced in consumption.

St. Francis Hospital.—Dr. John Dorning has been appointed a visiting physician to the hospital.

Marine-Hospital Service.—*Official List of the Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the Fifteen Days ending November 30, 1894:*

MURRAY, R. D., Surgeon. To proceed to Key West Quarantine and assume command of station. November 17, 1894.
CARTER, H. A., Surgeon. To proceed to Norfolk, Va., and

assume command of service. November 17, 1894. Granted leave of absence for fifteen days. November 20, 1894.

WASDIN, EUGENE, Passed Assistant Surgeon. To proceed to Pittsburgh, Pa., and assume command of service. November 21, 1894.

WILLIAMS, L. L., Passed Assistant Surgeon. Granted leave of absence for sixteen days. November 20, 1894.

MAGRUDER, G. M., Passed Assistant Surgeon. To proceed to Galveston, Tex., and assume command of service. November 21, 1894.

KINYOUN, J. J., Passed Assistant Surgeon. Granted leave of absence for six days. November 26, 1894.

PERRY, T. B., Passed Assistant Surgeon. Granted leave of absence for thirty days. November 20, 1894.

GOODWIN, H. T., Passed Assistant Surgeon. To proceed to Cincinnati, Ohio, to inspect unserviceable property. November 20, 1894.

GUITERAS, G. M., Passed Assistant Surgeon. Granted leave of absence for ten days. November 28, 1894.

GEDDINGS, H. D., Passed Assistant Surgeon. To proceed to South Atlantic Quarantine and assume command of station. November 21, 1894.

PERRY, J. C., Passed Assistant Surgeon. Granted leave of absence for thirty days. November 24, 1894.

YOUNG, G. B., Passed Assistant Surgeon. Granted leave of absence for ten days. November 20, 1894.

STRAYER, EDGAR, Assistant Surgeon. To proceed to Boston, Mass., for duty. November 22, 1894.

BLUE, RUPERT, Assistant Surgeon. To proceed to Charleston, S. C., for temporary duty. November 21, 1894.

PROCHAZKA, EMIL, Assistant Surgeon. Leave of absence granted November 14, 1894, canceled November 26, 1894.

THOMAS, A. R., Assistant Surgeon. To rejoin station (St. Louis, Mo.). November 16, 1894.

CUMMING, H. S., Assistant Surgeon. To proceed to Norfolk, Va., for temporary duty. November 22, 1894. Granted leave of absence for eighteen days. November 27, 1894.

Society Meetings for the Coming Week:

MONDAY, *December 10th*: New York Academy of Medicine (Section in General Surgery); New York Ophthalmological Society (private); New York Medico-historical Society (private); New York Academy of Sciences (Section in Chemistry and Technology); Boston Society for Medical Improvement; Gynæcological Society of Boston; Burlington, Vt., Medical and Surgical Club; Norwalk, Conn., Medical Society (private); Lenox Medical and Surgical Society, New York (private); Baltimore Medical Association.

TUESDAY, *December 11th*: New York Academy of Medicine (Section in Genito-urinary Surgery); New York Medical Union (private); Kings County, N. Y., Medical Association; Medical Societies of the Counties of Oswego (semi-annual—Oswego) and Ulster (quarterly), N. Y.; Newark, N. J., Medical Association; Trenton, N. J., Medical Association (private); Clinical Society of the Elizabeth, N. J., General Hospital and Dispensary; Morris, N. J., County Medical Society (semi-annual); Northwestern Medical Society of Philadelphia; Baltimore Gynæcological and Obstetrical Society; Practitioners' Club, Richmond, Ky.

WEDNESDAY, *December 12th*: New York Pathological Society; New York Surgical Society; Metropolitan Medical Society, New York (private); American Microscopical Society of the City of New York; Medical Societies of the Counties of Cortlandt (semi-annual) and Montgomery, N. Y.; Pittsfield, Mass., Medical Association (private); Philadelphia County Medical Society.

THURSDAY, *December 13th*: New York Academy of Medicine (Section in Pædiatrics); Society of Medical Jurisprudence and State Medicine, New York; Brooklyn Pathological Society; New York Laryngological Society (annual); Medical Society of the County of Cayuga (semi-annual), N. Y.; South Boston, Mass., Medical Club (private); Pathological Society of Philadelphia.

FRIDAY, *December 14th*: Yorkville Medical Association, New York (private); German Medical Society of Brooklyn; Medical Society of the Town of Saugerties, N. Y.; Brooklyn Dermatological and Genito-urinary Society (private).

SATURDAY, *December 15th*: Clinical Society of the New York Post-graduate Medical School and Hospital.

Births, Marriages, and Deaths.

Born.

SHANNON.—In New York, on Tuesday, November 20th, to Dr. and Mrs. William Shannon, a daughter.

Married.

FOSTER—SAVAGE.—In Summit, N. J., at Calvary Church, on Wednesday, November 14th, Dr. Matthias L. Foster, of New York, and Miss Constance H. Savage, of Summit.

SKINNER—COLIE.—In Paris, on Wednesday, October 17th, Dr. Winslow W. Skinner, formerly of New York, and Made-moiselle Marie E. Colie.

Died.

BROCKWAY.—At his home, at No. 181 West One-hundred-and-thirty-fourth Street, New York, on Wednesday, November 28th, Dr. William Gay Brockway, aged thirty four years.

BRUSH.—In Colorado Springs, on November 29th, Medical Inspector George R. Brush, of the navy, aged fifty-nine years.

Letters to the Editor.

INTESTINAL ANASTOMOSIS.

NEW YORK, *December 4, 1894.*

To the Editor of the New York Medical Journal:

SIR: In connection with my paper on Intestinal Anastomosis, published in your journal of December 1st, there appeared a critical examination by Professor Murphy of the objections that I made to his button. Permit me to reply that Professor Murphy's remarks as to the retention of the button in cases of intestinal fistulæ do not apply to the particular case mentioned in my paper, as there was no fistula, and that the second operation terminated fatally was ample proof that there was danger.

The doctor's answer to the second point adds force to the objection and proves it to have been well taken, as it is obviously impracticable to submit all buttons for Dr. Murphy's inspection and approval.

The other objections made seem to be conceded by the inventor, as he has made no effort to answer them.

In collecting the cases of Maunsell's method of intestinal anastomosis it is regretted that a case reported by Dr. Parker Syms in the course of the discussion on the writer's case of

Contusion and Rupture of the Ileum (*New York Medical Journal*, December 9, 1893, page 702) was overlooked.

FREDERICK HOLME WIGGIN, M.D.

A WARNING.

72 WEST EIGHTY-SECOND STREET, NEW YORK, *December 1, 1894.*

To the Editor of the New York Medical Journal:

SIR: I desire to warn the profession against a man, white, about thirty years old, medium height, large features, a brown mustache, and who was suffering from a nervous affection, shown by twitching of the eyelids and a tremor of the hands, who was dressed in a long brown overcoat, black trousers, black derby, wore gloves, and carried a silver-headed umbrella. He called at my house last evening, was alone in the room for about three minutes, and when I entered he exclaimed, "Why, doctor, I guess I have gotten in the wrong place, I want to see Dr. —," mentioning my neighbor two doors nearer the avenue. I naturally gave him the doctor's number, and he bid me good evening, apologizing for the intrusion. Five minutes after he left, I missed some silver articles from a table in the room. He was undoubtedly an expert, as he only took what was genuine.

It is needless to say that he did not call on the doctor two doors below, but he may yet, for it is most probable that he will make the rounds of the profession.

HARRY M. ARCHER, M.D.

MALTOSE VERSUS GLUCOSE.

SPRINGFIELD, MASS., *November 16, 1894.*

To the Editor of the New York Medical Journal:

SIR: In reading the article, *Maltose versus Glucose*, by Dr. R. G. Eccles, in your issue of November 3d inst., I was impressed by what seemed to my benighted understanding one or two inaccuracies and an overstatement. In the first place, he assumes that gastric juice has no action on bread unless it be previously acted upon by ptyalin, which I think is not correct. For he states, speaking of the American habit of bolting food: "The ptyalin does not get mixed with the food, the starch is not digested from around the gluten, the pepsin can not do its work, and disease is the consequence." Again: "As an artificial aid to digestion pepsin fails because it can not get at the gluten of the bread, because it is buried in starch. Digest this starch with added diastase and the evil is overcome."

Now I most respectfully submit, firstly, the gastric juice can digest the gluten; and secondly, there is no such thing as a distinct layer of starch covering the gluten of bread and separating it from the gastric juice as the doctor states. Moreover, what if the stomach fails to digest the gluten of bread, which is only about 11.05 in a hundred parts of wheat and a much less ratio of the bread? Disease need not necessarily follow, for has he not told us, speaking of the pancreatic ferments, that "amylase takes the place of ptyalin and digests albuminoids"? It would seem *a priori* that if the stomach thoroughly and completely digested the other albuminoids—*e. g.*, meat, eggs, casein, etc.—it was doing very well. The two ferments mentioned ought to be able to manage this one kind, bread and its gluten, and were the stomach to thoroughly and completely digest *all* the alimentary matters, then these ferments would be superfluous. I contend, as I have before stated, that the gluten of bread is not covered, as he intimates, by any distinct layers of starch, so as to render it inaccessible to the gastric juice. The walls of the little holes or cells which form so large a portion of the bulk of bread are made by the efforts of the gluten to prevent

the carbonic-acid gas, generated by the yeast, from escaping. The walls of all these little cells contain some gluten as well as starch, and these are generally and universally distributed throughout the whole mass. The gastric juice dissolves out this gluten just as it dissolves the connective tissue surrounding the fibrous bundles and adipose tissues of meat, setting free and precipitating the starch on the one hand and the muscle fibers and fat cells on the other.

In support of this position I quote Dalton's *Physiology*, page 163, speaking of the churning or peristaltic movements of the stomach: "The alimentary matters incorporated with the gastric juice are disintegrated by the liquefaction of their albuminous ingredients. Bread consists mainly of hydrated starch and solid gluten. By digestion the gluten is converted into soluble peptone, the starch being set free and the whole reduced to a diffuent condition. The same effect is produced on bread subjected to the action of gastric juice in a test tube, the gluten passing into a liquid condition, while a deposit of unaltered starch settles at the bottom." I have no objection to the doctor's saying a good word for malt, even though he add the *ine*, but desire that he do not impair the scientific value of a paper otherwise good. I wish him to be first correct, then consistent.

DANIEL E. KEEFE, M. D.

Proceedings of Societies.

THE MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Twentieth Annual Meeting, held in Hot Springs, Arkansas, on Tuesday, Wednesday, Thursday, and Friday, November 20, 21, 22, and 23, 1894.

The President, Dr. XENOPHON C. SOOTT, of Cleveland, in the Chair.

(Continued from page 691.)

The Influence of Early Treatment on the Late Manifestations of Syphilis.—A paper thus entitled was read by Dr. A. RAVOGLI, of Cincinnati, who said that syphilis must be seriously treated. Mercury was the true antitoxine for the disease. It was necessary to take into consideration the general condition of the patient, his habits, his general health, his surroundings, etc., for they had great influence on his toleration of the medicine. The author believed that early, well-directed treatment of syphilis would prevent tertiary symptoms.

Physicians' Prescriptions.—Dr. STARLING LOVING, of Columbus, O., read a paper in which he alluded to the difficulties which young practitioners encountered when they essayed their first prescriptions. He said we seldom read of mishaps from defectively written prescriptions in England, Germany, or France, where prescription-writing was more extensively and systematically taught. Sufficient attention was not always given in this country to compatibilities, chemical and therapeutic, to solubilities, and to the influences of light, temperature, air, and other circumstances affecting the condition of drugs and chemicals. Many failures in treatment and many accidents, some serious in character, resulted from carelessness or want of accuracy in the directions given to nurses and patients for the administration of medicines.

Quinine in Chorea.—Dr. FRANK R. FRY, of St. Louis, read a paper on this subject, the joint production of himself and Dr. M. A. BLISS, of St. Louis, the tenor of which was confirmatory of Dr. Horatio C. Wood's theory of derangement of the spinal inhibitory apparatus as a cause of the symptoms. The

authors gave short accounts of cases of chorea in which they had given quinine with satisfactory results. They had not found it necessary to employ large doses, and they had not observed unpleasant effects from the use of the drug.

Dr. CHARLES H. HUGHES, of St. Louis, had used quinine in chorea, generally as an adjuvant, but had not accepted Dr. Wood's theory.

Dr. HAROLD N. MOYER, of Chicago, thought that the best remedy for chorea was arsenic used hypodermically.

Dr. WILLIAM F. BARCLAY, of Pittsburgh, suggested the use of bromide of gold and arsenic.

Dr. B. MERRILL RICKETTS, of Cincinnati, spoke of the frequency of phimosis as a cause of chorea.

Dr. ASHTON, of Texas, thought that a rheumatic diathesis often gave rise to the disease, and he favored the employment of antirheumatic treatment.

Reflex Irritation as a Cause of Nervous Diseases.—Dr. EDWIN WALKER, of Evansville, Ind., read a paper with this title. The paper went to show that the importance of reflex irritation in giving rise to morbid states of the nervous system had been much overestimated. The author had believed in the theory for many years, but he had never yet seen a neurosis cured or permanently relieved by such operations as circumcision, uterine trachelorrhaphy, perinaeorrhaphy, and the like.

In the discussion Dr. Walker's conclusion was very generally sustained.

Accidents and Injuries from Electric Currents of High Potential was the title of a paper by Dr. MOYER, who gave an abstract of it orally. The alternating current, he said, was the most dangerous. It was only under exceptional circumstances that the current from a trolley proved destructive to life.

The Mental Symptoms of Cerebral Syphilis.—Dr. FRANK P. NORBURY, of Jacksonville, Ill., read a paper on this subject, based on the study of twenty-seven hundred cases. Somnambulism and allied states, he said, with lapses of intelligent conceptions and loss of memory, were mental symptoms of cerebral syphilis. Sudden somnolence with ocular spasm or paralysis pointed to syphilis; when preceded with headache and monoplegia, it was almost pathognomonic. Headache, quasi-periodical, as defined by Gray, with marked insomnia, suddenly ceasing and followed by psychical disturbance, was due to syphilis. Melancholia or mania, when following periodical headaches, insomnia, or somnolence, with ocular spasm or other form of monoplegia or heterogeneous paralysis, was due to syphilis. The same was true of pseudo-paranoia, by which he meant cases presenting all the symptoms of paranoia, systematized delusions depending on hallucinations of sight, hearing, taste, or smell, with slight impairment of the general mental functions. We knew that syphilis caused isolated local losses of power, and it was noteworthy that when the special senses were involved mental derangement usually resulted—pseudo-paresis.

The Surgical Treatment of Injuries of the Head was the title of a paper by Dr. CHARLES B. PARKER, of Cleveland. The author had met with exceptions to Colles's rule that swelling did not occur in cases of depressed fracture. He valued the chisel more highly than the trephine in many cases of depression, for with it one was able to save bone that might otherwise have to be sacrificed. Of course, the chisel should be held obliquely and the mallet used gently, so as not to produce further commotion of the brain.

Dr. H. O. WALKER, of Detroit, objected to the chisel and mallet. He preferred a small trephine and a rongeur forceps.

Traumatic Lesions of the Cranium and Brain was the title of a paper by Dr. GEORGE N. LOWE, of Randall, Kansas, who reported four interesting cases.

Castration for Hypertrophied Prostate; Removal of the Head of the Femur for Dislocation into the Lesser Sciatic Notch; Trephining for Pressure as a Result of Fluid in Acute Cerebral Meningitis.—Dr. RICKETTS read a paper in which he gave histories of such cases. In the case of castration for hypertrophied prostate he had been inclined at first to do prostatectomy, possibly combining the suprapubic and perineal operations. After thoroughly considering the matter and explaining to the patient the probable results of the various operations, however, he had decided to remove the testicles. On the second day after the operation the patient had said that he could urinate with greater ease, that the pain was slight, and that he could sleep four hours at a time during the night, whereas formerly he had been getting up every hour.

The second was reported to show how little was known of what might have taken place within a mass of muscular and adipose tissue. It had been said that all operations upon the abdomen were exploratory, and it might well be said that a positive diagnosis could not be made in cases of fracture or dislocation without an exploratory incision. The question therefore arose, What was our duty to ourselves and our patients in these complicated fractures and dislocations, where doubt existed as to their character? Especially might this question be asked where the results were not what might have been expected.

Commenting upon the third case, the author spoke of the importance of draining on each side of the head.

Dr. MOYER, speaking of the third case, dissented from the statement that the arachnoid should be drained from each side; he thought it better to drain from one side only, with the addition of drainage of the lateral ventricle.

Dr. B. LEWIS, of St. Louis, remarked that credit should be given to Dr. J. W. White, of Philadelphia, for his early advocacy of castration as a remedy for prostatic enlargement.

Tumor Albus of the Knee Joint.—Dr. WILLIAM E. WIRT, of Cleveland, read a paper containing a summary of the points to be observed in the treatment, and calling attention to the fact that most excellent results were obtained by the use of conservative measures—such as counter-irritation, fixation, protection, rest, and the correction of deformity.

Resection of the Knee for Separation of the Lower Epiphysis of the Femur.—Dr. A. H. MEISENBACH, of St. Louis, read a paper in which, after reviewing the part played by injuries of various sorts and by disease in giving rise to diastasis, he recounted a case of two years' standing in a child thirteen years old. The specimen was shown and the conditions were further portrayed by means of diagrams. The displacement had been in a backward direction, as was generally the case. The operation had been by means of bilateral longitudinal incisions and an elliptical transverse cut.

Colles's Fracture was the subject of a paper by Dr. J. E. LINK, of Terre Haute, Ind., who demonstrated his use of an elaborate system of pads.

(To be concluded.)

SOCIETY OF ALUMNI OF BELLEVUE HOSPITAL.

Meeting of October 3, 1894.

The President, Dr. C. C. BARROWS, in the Chair.

The retiring president, Dr. F. H. WIGGIN, spoke as follows:

Gentlemen of the Society of Alumni of Bellevue Hospital: Having been taken somewhat unawares when I was called on to address you immediately after my election as your presiding officer, I was obliged, after looking into the affairs of the society, to address a circular letter to you, calling your attention to the fact that our society contained among its members an

unusual proportion of talented men, many of whom occupied prominent public positions, but who, from one reason or another, but mainly because they had never been asked, were taking little interest in the active work of the society. It was requested that the attendance should be more regular and prompt; that more interesting cases and specimens with written histories should be presented; that all manuscript should be ready for publication the evening when read, thus insuring prompt publication with the discussion, arrangements having been made with the *New York Medical Journal* to that end.* It was further requested that those willing to write papers or to take part in the discussions should send in their names.

That the response to this appeal was gratifying, it is only necessary to recall the names of those gentlemen who, during the past winter, took part in the society's work. These were Dr. Gouley, Dr. Charles Phelps, Dr. A. A. Smith, Dr. Eldridge, Dr. Page, Dr. Dennis, Dr. Bryant, Dr. Le Fevre, Dr. Parker, Dr. Syms, Dr. Barrows, Dr. Grandin, Dr. Byron, Dr. Edgar, Dr. Herman, Dr. Biggs, Dr. Kalish, and Dr. Winters. Surely a goodly company of which any society might well be proud.

The thanks of the society are especially due to Dr. Robert J. Carlisle for his work in connection with the history or account, as he modestly termed it, of Bellevue Hospital which was published during the year by this society, also to Dr. Gouley, the energetic chairman of the special committee on the revision of the constitution and by-laws, for the wisdom and labor expended thereon, and the resulting attractive booklet which has recently been placed in the hands of every living alumnus of Bellevue Hospital, for the purpose of showing them what the society is and what it has accomplished. That this has had its effect the increased number of applications for membership recently received proves.

Your society has prospered in other ways. Its membership has increased and now numbers all told a hundred and ninety-nine, of which were added during the past year nine resident, seven non-resident, one associate, and one honorary member.

The treasury has not been overlooked, and many dollars of unpaid back dues have come to hand during the past months. It is suggested that the members should be more promptly responsive to the appeals of the treasurer.

I now desire to return my sincere thanks for the honor which you conferred on me and which I deeply appreciated; also for the kind and considerate manner in which you have encouraged and aided me in the transaction of duties which, at the best, are arduous and would have been impossible of accomplishment without your cordial co-operation.

The strength of a society lies not in its presiding officer, but in the work of its individual members and of its committees.

It now becomes my pleasant duty to welcome as my successor that worthy son of old Bellevue, too well known to require an introduction to you at my hands, whom you have recently chosen as your president for this coming year. Gentlemen, I present Dr. Charles Clifford Barrows.

Address of the President.—Gentlemen of the Society of Alumni of Bellevue Hospital: I thank you for the honor you have conferred upon me by asking me to become your presiding officer for the next ensuing year. I shall strive fairly and faithfully to carry on the good work which my predecessors in this office have so well inaugurated and so firmly established. Under their wise administration the society has prospered beyond the expectations of even its most devoted friends and members.

We have within a few years grown from a dozen members to more than two hundred, and our meetings are better attended than those of any private medical society of which I have a knowledge.

During the administration of my friend and immediate predecessor, Dr. Wiggin, it was found that there were certain contingencies which might arise in a gathering of medical men so large as our meetings which were not provided for in a constitution and by-laws constructed for the government of the society in its original modest condition.

It was thought best, therefore, to revise the constitution and by-laws, and a committee was appointed for that purpose. How well this has been done at the hands of this committee you all know. Dr. Gouley, its chairman, our dear friend—for he is that to all of us here—has handled the subject with that ease and grace of manipulation for which he is so famous in other lines, that the result is a constitution and by-laws as nearly perfect as it is possible for such an instrument to be constructed. But if you will read over this document carefully you will find hidden within its covers proof positive that it was constructed by physicians. There is a prescription in it, and I am afraid it will prove rather a bitter dose to the society, too.

You will notice that when the president is installed he must deliver an address. Now this prescription, from the standpoint of the patient, our society, may or may not have been needed. The small boy rarely thinks he needs the dose of castor oil, but from the physician's standpoint it must be swallowed by the patient, and, if such a thing can be done, with a smiling face.

Since I am called upon to administer the first dose of this purely empirical new remedy, while I know the constitutional peculiarities of my patient, this is my first experience with the drug, and I shall therefore begin with a very small dose, for fear the result of a larger one may prove disastrous.

And just here, to illustrate how entirely innocent I am in this matter, permit me to relate to you a story of a friend of mine, a physician of Washington city. This physician has a negro coachman, as is the custom in that city. One day this coachman drove my friend the doctor to a house where the crape on the door indicated a recent death. The people of the house were not patients of the physician, but he had gone there simply to make a call of consolation as a friend of the family. The negro coachman, sitting on the box in his most dignified manner, was approached by one of his own color, who asked: "Whose daid in dat house dare." Our colored friend replied: "I don't know nothin' 'tall about it. 'Taint none o' we-all's killin's." So that, if the society does not survive this new drug, I must not be held responsible for its administration.

I trust that our sessions during the coming year may be as successful, from both a scientific and social standpoint, as they have been in the past. And I can say for the Committee on Science that we have the promise already of papers from some of the best men in the country. I rather regret relinquishing my command of the commissariat; but I am sure we shall all enjoy the administration of my successor.

I can not refrain from mentioning some of the advantages of our society. Our scientific papers and discussions have been of the highest order. Our clinical reports have been remarkably full and interesting, and the exhibition of cases has brought out many valuable and interesting discussions.

It has been said by some of our alumni, who are pursuing work in special branches of medicine and surgery, that they prefer to read papers before special societies, because they believe the papers are better appreciated there. I am sure they are mistaken (and I speak from practical experience as a member of such special societies), for I do not hesitate to say that there can not be found in this city a more intelligent, a more keenly critical, or a better educated audience than this over which I am asked to preside.

Look about the city of New York, and for that matter the

country at large, and see where the alumni of this great hospital of ours stand. Always in the front rank of the profession in every branch of medicine and surgery.

But there is another side of our society which, to my mind, is its chief charm, and which, I hope, we shall all guard jealously and keep, as it always has been, a prominent feature of our meetings. I refer to the social part of our sessions. The practice of medicine at best is not a very cheerful occupation. Its worries and cares and responsibilities, its jealousies and its disappointments, are proverbial. The disagreement of doctors has become a by-word with the laity. In the daily routine of our work, on whatever side we turn, we stumble over the fallen trunk of many a pet theory, and we walk through the ashes of many a bitter controversy still hot beneath our feet. Let us, then, on one night in the month throw aside all these unpleasant things, and meet together as we have done heretofore, not as professional competitors, but as convivial friends.

Two questions of much importance to our society will be presented to you for decision shortly. One has already been brought to your notice in the circular sent out with the history, constitution, and by-laws recently distributed to all the alumni of Bellevue Hospital. That is, the suggestion that a general assembly of alumni of Bellevue Hospital be held during the coming winter, to which all alumni, resident and non-resident, be invited and requested to contribute papers and engage in their discussion, the meeting to be followed by a subscription dinner.

It is for the society to decide whether such a meeting shall be held, followed by a dinner, or whether simply a subscription dinner shall be given, or whether it is deemed best not to have either dinner or meeting. The dinners that we have given and the general assemblies that we have held have all been, as you know, very successful and enjoyable affairs, especially to out-of-town members. If I may be permitted to express an opinion, I would suggest that this proposition, in some form, meet with your support and approval.

A number of letters have already been received from out-of-town alumni all urging that such an assembly be held. This question should be settled promptly, in order that the necessary committees be appointed and the work be got under way at once, a great deal of time being necessary for the preparation of a successful public assembly and dinner.

If it is decided that the assembly and dinner, one or both, be given, the time must next be settled upon.

In order that it be a success, this, too, is an important question, because a time must be chosen when the greatest number of alumni, resident and non-resident, may be present, and when their appetites have not already been satiated and their pockets depleted by various other celebrations of the same kind. It would seem, then, that some time soon after the Christmas holidays would be most fitting.

The other question which you will be called upon to decide is as to the publication of the proceedings of our meetings in some such form as to enable them to be preserved and distributed to the members, especially the non-resident members. This last-named class of members is particularly interested in the question of the publication of the *Transactions*, as they are unable to attend the meetings and can not hear the papers read nor engage in the discussions. Some record of the transactions, it seems to me, should be furnished them and in such form as to be easily handled and readily referred to when desired. An annual volume of transactions simply bound in cloth or paper would, I am sure, be greatly appreciated by all the members of our society. The *New York Medical Journal* has undertaken to publish our transactions from week to week regularly, and I am informed by the publishers of this journal that such a volume as I mention can be furnished at the very moderate cost of \$125

for five hundred copies in paper. But I leave these questions, and you will easily see that they are very important questions, to the society—to your decision—and I am sure they will be decided wisely and promptly. I thank you again for the honor you have conferred upon me, and assure you that I shall endeavor as best I can to wear gracefully the mantle of my friend which has fallen on my shoulders.

An Unusual Case of Diphtheritic Paralysis.—Dr. FLOYD M. CRANDALL reported such a case. It was of special interest from the fact that the paraplegia had appeared very early in the course of the diphtheria. As a rule, the paralysis of diphtheria showed itself, he said, in two forms—the early and the late forms. The former usually came on during the attack, appearing first as paralysis of the throat. The latter form appeared usually from one to three weeks after recovery from diphtheria. In the case he was about to report complete paraplegia had come on with the diphtheria, and for a time the diagnosis lay between diphtheritic paralysis and anterior poliomyelitis. His experience had led him to believe that diphtheritic paralysis not affecting the throat was more common than had been generally supposed. He had seen a number of cases within the last few years in which the lower extremities had been chiefly involved, and the throat had been but little if at all affected.

Dr. IRVING S. HAYNES said that such a type of paralysis was sometimes observed in orthopaedic cases. He recalled one case in which the paralysis had involved the left lower extremity, and had affected chiefly the muscles of the anterior tibial group. In this case also there had been a doubt for some time as to whether it was a case of anterior poliomyelitis or one of diphtheritic paralysis.

Dr. WILLIAM M. POLK asked with reference to the possible effect of the diphtheritic ptomaines injected in this early form of paralysis. He would like to know if any member had had personal experience in this line of investigation. Of course, these observations so far had been made chiefly upon the effect of the ptomaine injection upon the membranous exudation, but it might be useful, he thought, in connection with any of the manifestations of diphtheria.

An Archaic Japanese Catheter.—Dr. J. W. S. GOULEY exhibited a Japanese catheter, two millimetres and a quarter in diameter and thirty-four centimetres and a half in length, made of a very thin band of metal three quarters of a millimetre in breadth, spirally and closely disposed; the spiral beginning at the distance of eight millimetres from the vesical extremity of the instrument, and extending to three centimetres from the distal end which served as handle, and was in the form of an inverted cone, closed by a movable operculum attached to a stylet twenty-eight centimetres long, thus leaving five centimetres of the vesical end free to move in any direction. In an extent of eight millimetres the vesical end was cylindrical and fixed, and had two opposite oval eyes near the point, which was well rounded and smooth.

This instrument, of exquisite workmanship, had been sent to the speaker by Dr. Stuart Eldridge, of Yokohama, who wrote that he believed it to be “not less than a hundred years old, but whether it was derived from Portuguese or Dutch sources is unknown, but not unlikely.”

If derived from a foreign source, said the speaker, it was not likely to have been Portuguese, for there did not appear to be a single record of the invention of a spiral catheter in the annals of any European nation until toward the close of the seventeenth century. The history of the eastern expedition of the Venetian Marco Polo gave no helpful information on this subject. The Portuguese, who had rediscovered “Cipango” (Japan) in 1542, had been finally expelled, and in 1600 had been succeeded by the Dutch. The question was whether the invention

of the spiral catheter was Dutch or Japanese, and it could be answered only by a Japanese archaeologist.

The first Dutch spiral catheter had been described by Solingen in his manual of operative surgery, published in 1684. The spiral metallic band was more than twice as broad as that of the Japanese catheter, which resembled the “vermicular catheter” of the Italian surgeon Roncalli-Parolino, who, in his *Historia morborum*, published in 1741, had described the instrument as covered with thin leather, but made of a much narrower metallic band than that of Solingen. The Japanese vermicular catheter seemed to have been intended to be used unsheathed, and was in every respect superior in workmanship to the Dutch and Italian catheters.

Tumor of the Lower Jaw.—Dr. ALEXANDER B. JOHNSON presented such a case with the specimen. The patient, a girl, four years of age, had been first seen on May 4, 1893. The mother had first noticed an enlargement of the lower jaw on the right side eighteen months previously. The swelling of the jaw had been painless, and had grown slowly without causing any difficulty other than visible deformity. The patient had been seen by a physician some months previous to the time when she had been brought to him, and an operation of some sort had been done, probably in the nature of an incision within the mouth, but the tumor had failed to disappear. Examination of the patient had shown her to be fairly nourished and without any apparent disease other than that in the jaw. The child's face had been oddly deformed, suggesting the undershot appearance of a bulldog. The mental, submental, submaxillary, and parotid regions had been occupied by a smooth rounded swelling which had been covered with healthy integument. The mass had been ovoid in shape and of the volume of a small orange. The enlargement had seemed to include the entire circumference of the body of the jaw, and had projected into the floor of the mouth, displacing the tongue to the right. The tumor had been smooth to the feel and of bony hardness. The teeth had been sound and not loose. Examination within the mouth had shown a prolongation of the growth to the right as far as the first molar tooth. In operating, on May 5, 1893, a horizontal incision had been made from the middle of the chin in front to a point opposite the junction of the body of the jaw with the ascending ramus on the left side. Excision of the bony mass, which had extended as far as the junction of the body with the ascending ramus on the left side and as far as the canine teeth on the right, had been done subperiosteally. The skin and mucous membrane had been sutured, and a small opening had been left in front for drainage. Rectal feeding had been resorted to for the first forty-eight hours. There had been some infection of the wound from the mouth in spite of frequent washing with hydrogen dioxide, and several skin sutures had been removed on the third day. There had been a slight rise of temperature after the operation, lasting for three days. A small piece of the anterior cut surface of the right fragment of the jaw had necrosed and had been removed on June 3d. This necrosis had been accompanied by the formation of a small abscess under the skin, which had opened at the same time, and had healed promptly. There had been a regeneration of bone which had united the two fragments of the jaw remaining after the operation, enabling the child to use the lower molar teeth on the right side satisfactorily for chewing her food. It was evident that the deformity was considerable, but not excessive, when the extensive removal of bone was borne in mind. It seemed probable that a set of properly constructed teeth might be worn with good cosmetic effect, with benefit to the child's digestion, and perhaps with a favorable influence on the development of the jaw. At present the projection of the end of the right fragment forward made a fairly good chin when seen

from a little distance. The report of the microscopical examination of the tumor by Dr. Hodenpyl had stated that the growth was made up of tissue bearing the typical character of osteosarcoma, the sarcoma cells being largely of the multinuclear or giant-cell type, together with spindle cells and round cells in considerable number. The tumor, however, had been of comparatively slow growth, and up to the present time there had been no sign of recurrence, so it was to be hoped that the cure was a permanent one. The cavities which were to be seen in the growth were, in the fresh state, filled with soft sarcomatous tissue; the bony shell, which was now broken over a small area, had been complete at the time of operation, and had been fractured during removal.

Dr. Gouley said that this was an important point in the diagnosis of the case; that he believed the tumor was of the nature of a dentigerous cyst, and that if the teeth had been counted it would have been found that one or more were wanting. The case was very interesting, and notwithstanding the result of the microscopical examination he was inclined to think that it was a benign tumor due to a dental anomaly, and that the growth would not return. The operation had been remarkably well done. The suggestion to supply an artificial set of teeth was excellent.

The first case of the kind that he had ever seen had been in the practice of the late Dr. Charles E. Isaacs, whom he had assisted in removing half of the jaw from a gentleman fifty years of age. The disease had been supposed to be malignant, yet he had seen this man twenty years later, and he had still been in good health. He had had in his own practice two cases of tumor of the jaw requiring removal. Both of them had proved to be dentigerous cysts, the cause of the growth being one or more abnormally developed teeth. Perhaps the best essay on the subject that had ever been published had been by Forget, a French surgeon, who had given a number of cases with illustrations. Some of these cysts had been single and some multiple. In both of his own cases there had been single cysts with a thin shell of bone, the interior being filled with a colloid substance. As he had already read Forget's book, he had been led from his former experience and from the facts given in the book, to give a good prognosis in these cases, and both patients had lived many years and had finally died from other causes. The largest dentigerous cyst he had ever seen had occurred in the practice of the late Dr. Willis F. Westmoreland, of Atlanta, Ga. This cyst had been about five inches in mean diameter. He had removed half of the jaw and the patient had made a good recovery. The speaker said he was inclined to believe that these tumors of the maxilla with a thin shell arose from anomalously developed teeth. In the book already alluded to a case had been reported in which one canine tooth had grown in the roof of the mouth across the hard palate.

Dr. Parker Syms said he had been much interested in the remarks of the last speaker regarding the probable nature of the tumor. Some years ago he had seen in the New York Hospital Out-patient Department a somewhat similar case, although the growth had been much smaller. It had been distinctly a dentigerous cyst, and the treatment had consisted in chiseling away the bone and removing an abnormally developed tooth in the bone cyst. He thought there were so many mistakes made in diagnosing by microscopical examination growths as sarcomatous tumors that he had come to place little reliance upon such examinations. The last case of this kind that he had had had been one of granuloma appearing behind the incisor teeth in a man about eighteen years of age. It had been firmly attached to the periosteum. The visible portion of the granuloma, which had resembled a small cauliflower mass, had been removed for diagnosis. The microscopist had made a diagnosis of osteosarcoma,

yet this must have been wrong, for, although there had been no attempt at removing the growth thoroughly, a cure had been effected. He thought Dr. Johnson should be congratulated on the result, and that his suggestion to use a set of artificial teeth was to be indorsed.

Dr. Johnson said that the history before and after the operation had certainly pointed to a benign growth, and that he, as well as Dr. Hotchkiss, who had assisted him in the operation, had made the diagnosis of a dentigerous cyst on the gross appearances of the tumor. The microscopical examination, however, had certainly shown tissue closely resembling sarcoma.

(To be concluded.)

Book Notices.

A Dictionary of Medicine, including General Pathology, General Therapeutics, Hygiene, and the Diseases of Women and Children. By Various Writers. Edited by RICHARD QUAIN, Bart., M. D. Lond., LL. D. Ed. ? F. R. S., President of the General Council of Medical Education, etc., assisted by FREDERICK THOMAS ROBERTS, M. D. Lond., B. Sc., Fellow of the Royal College of Physicians, etc., and J. MITCHELL BRUCE, M. A. Abdn., M. D. Lond., Fellow of the Royal College of Physicians, etc., with an American Appendix by SAMUEL TREAT ARMSTRONG, M. D., Ph. D., Visiting Physician to the Harlem Hospital, etc. New Edition, revised throughout and enlarged. Vol. I. Abdomen—Lysis. Pp. xxiv-1261. Vol. II, Macrocheilia—Zyme. Pp. vii-1305. New York: D. Appleton & Co., 1894.

It is scarcely necessary to do more than call the attention of the American profession to this work, the first edition of which had—as we judge from seeing it in the offices of so many physicians—an enormous sale. There are, however, so many alterations in the book as it is now published that it is worth the while of those who already possess the original edition to buy and read this also. To the later generation of doctors it is an acquisition, both from the scientific and from the sentimental standpoint; for in these two beautiful volumes, which are among the handsomest that we have ever seen, they have not only an encyclopædia of information upon subjects appertaining to internal medicine, but a repository of short essays by probably a majority of those British specialists and writers in this department whose names are best known at the present day and whose works are to take their places among the medical classics of the Victorian age. A pretty strong statement this, and apt to bring out a smile of incredulity at first sight. But, if we may be allowed to mention a few of the subjects and their authors, the reader will see at once that we are within bounds.

Aside from the celebrity of the men, a large proportion of whose names are known even to our senior students, it will be seen that the majority of them write upon subjects with which they are identified either as original investigators or as special students.

We turn over the pages haphazard and note the following as a few of the illustrations of what we have said: On opening the second volume we come almost immediately upon *Physical Examination*, by Douglass Powell.

Further along is an article on *Diseases of the Spinal Cord*, by H. Charlton Bastian, and, as a few other examples, *Spinal Irritation*, by Brown-Séquard; *Thoracic Aneurysm*, by Dr. Hayden, of Dublin, the author of the most complete English

work on the diseases of the heart and aorta; Uræmia, by Dr. Grainger Stewart; Hydrotherapeutics, by Dr. Herman Weber, of London, whose researches in climatology, hygiene, and kindred subjects are as well known here probably as in Europe; Influenza, by Dr. Peacock, whose beautiful clinical records in the hospital reports are familiar to all who study medicine; and so on throughout the two volumes.

Dr. Roberts's articles on the diseases of the lungs, on lymphatic disease, etc., are most admirable. Sir Richard Quain's own articles on cardiac degenerations, etc., are among the best in the book, being, as so many are, largely the fruit of his own research.

Another illustration of this peculiar merit of the dictionary was presented to the writer recently when, having occasion to look up some points in connection with myxœdema, he found that the section on that subject was written by Dr. Ord.

The fault of the book, and about the only one, is that the articles are of necessity so limited that one misses that full discussion of important data which is sometimes useful and even necessary to a clear comprehension of a subject. But this is, to a great extent, offset by the fact that the authors, as a rule, treat of subjects with which they are so perfectly familiar that they have been able to select the points of real importance. It may be justly said of books of this class that they are to some extent disadvantageous to young physicians, inasmuch as they have a tendency to discourage systematic reading. They are not, however, intended to take the place of text-books and special treatises, but simply as helps for the busy practitioner who may want a quick reference.

It would be highly unjust to allow our admiration of the work in its original form, and of the distinguished authors to whom we are indebted for its production, to obscure our recognition of the merits of the gentleman who has so ably edited the American edition.

The appendix added by Dr. Armstrong is really valuable. He is particularly fortunate in his judgment as to what subjects could be noticed most usefully for the American practitioner.

His articles on medico-legal quarantine and general sanitary topics, though necessarily short, are full of convenient information regarding matters of practical interest to the profession in the United States. The mineral springs of this country also, as well as many climatological data, are treated of as fully as was possible in the available space.

Any one who has occasion to refer to the work should not forget, after having read the article in the main work, to turn to the appendix, where he will find that Dr. Armstrong has furnished him with many additional points that may be of more recent date or of peculiarly American interest.

As we have already said, these volumes are among the most beautiful that we have seen. The publishers have evidently intended that the labors of the distinguished men who have contributed to it should be preserved in that most honorable of all repositories, a handsome book.

Medical Jurisprudence and Forensic Medicine and Toxicology.

By R. A. WITTHAUS, A. M., M. D., Professor of Chemistry, Physics, and Hygiene in the University of the City of New York, etc., and TRACY C. BECKER, A. B., LL. B., Counselor at Law. With the collaboration of AUGUST BECKER, Esq.; CHARLES A. BOSTON, Esq.; W. N. BULLARD, M. D.; J. CLIFTON EDGAR, M. D.; D. S. LAMB, M. D.; W. B. OUTTEN, M. D.; the Hon. WILLIAM A. POSTE; EDWARD S. WOOD, M. D.; E. V. STODDARD, M. D.; the Hon. GOODWIN BROWN; J. C. CAMERON, M. D.; E. D. FISHER, M. D.; H. P. LOOMIS, M. D.; ROSWELL PARK, M. D.; IRVING C.

ROSSE, M. D.; F. P. VANDENBERGH, M. D.; J. H. WOODWARD, M. D., and GEORGE WOOLSEY, M. D. New York: William Wood & Co., 1894. Vol. I, pp. xxix-5 to 845; Vol. II, pp. 751.

PROFESSOR WITTHAUS has written an interesting introduction to this work in which he traces the evolution of medico-legal science in the principal countries of the world, and adopts a very hopeful tone regarding its future in this country. His investigations have shown him that in a hundred and three out of a hundred and twenty-four medical schools from which replies were received to a circular inquiry regarding instruction in this topic, all but three have teachers of medical jurisprudence. In thirty-eight the teacher is a physician, in fifty he is a lawyer, in five he is a graduate in both professions, and three have two teachers, one a lawyer and the other a physician. The average number of lectures is twenty-one, though the average in the schools in which the teacher is a lawyer is fifteen. In sixty-two schools the professor of neurology teaches the medico-legal relations of his subject, in sixty-six the professor of surgery, in sixty-nine the professor of obstetrics, and in ninety-one the professor of chemistry is the teacher of these relations to the subject taught by him. Dr. Witthaus truly says that every practicing physician requires thorough instruction in medical jurisprudence, and it is best taught by one whose profession is the law. The law schools do not seem to attach so much importance to this subject as the medical schools; of thirty-five law schools, only ten have professors of medical jurisprudence.

In these volumes the matter is arranged in three divisions: medical jurisprudence, forensic medicine, and toxicology.

In the first volume, under the heading of medical jurisprudence there are three papers: The Legal Relations of Physicians and Surgeons, by Mr. T. C. Becker; The Law of Evidence concerning Confidential Communications, by Mr. C. A. Boston, and a Synopsis of the Laws Governing the Practice of Medicine, by Mr. W. A. Poste and Mr. C. A. Boston. Mr. Becker's paper reviews the acquirement of the right to practice medicine and surgery, the legal duties and obligations of physicians and surgeons, their right to compensation, their privileges and duties when summoned as witnesses in courts of justice, and their liability for malpractice. Mr. Boston's and Mr. W. A. Poste's and Mr. Boston's papers are comprehensive reviews of the subjects treated therein.

The editor follows Casper's classification in the division of forensic medicine—first, thanatological, including those branches in which the subject of inquiry is a dead body; second, biathanatological, in which the inquiry concerns both dead bodies and living persons; and, third, biological, in which the inquiry concerns living persons.

The thanatological aspect of forensic medicine, in the first volume, is prefaced by a paper by Mr. T. C. Becker, who, treating of the legal status of the dead body, considers the disposal of a corpse and the obligation to dispose of it, how and by whom it may be exhumed or removed, by whom necropsies may be ordered, and the rights of relatives and of accused persons.

Mr. A. Becker is the author of the section on the powers and duties of coroners and medical examiners. This section is but a review of existing systems, and the author does not show wherein the many defects of the usual coroner's system demands its abrogation and the substitution of a system of medico-legal examiners.

Dr. H. P. Loomis has written a satisfactory chapter on medico-legal autopsies, and also a suggestive paper on that difficult subject, the medico-legal determination of the time of death.

In a paper on Personal Identity, Dr I. C. Rosse refers to the usual methods used for its determination in the living and the dead. It might be wished that in this topic Dr. Rosse had described judicial anthropometry more at length.

Dr. George Woolsey is the author of an excellent chapter on the medico-legal consideration of punctured and incised wounds and of wounds made by blunt instruments, while Dr. Roswell Park is the author of the chapter on gunshot wounds.

In the chapter on death by heat or cold, Dr. E. V. Stoddard describes explicitly the distinctions he has observed between burns that were ante-mortem and those that were post-mortem.

Dr. W. N. Bullard, in a paper on the Medico-legal Relations of Electricity, considers indirect and direct accidents due to this agent and the symptoms produced thereby.

Dr. D. S. Lamb's paper on the Medico-legal Consideration of Death by Mechanical Suffocation, including Hanging and Strangulation, is one of the most comprehensive that have been written on this topic.

Death from Submersion, by Dr. I. C. Rosse, and Death from Starvation, by Dr. E. V. Stoddard, are the final papers in the first volume.

The second volume contains the chapters on the bio-thana-tological aspects of forensic medicine. Dr. E. S. Wood is the author of the first chapters, on the Examination of Blood and Other Stains and on the Examination of Hair. This author, after describing the chemical and optical methods of examining supposed blood stains, refers to the fact that, if blood is detected, it is necessary to make microscopic measurements of the corpuscles in order to speak with definiteness regarding the animal from which the blood came.

Dr. J. Chalmers Cameron, in his paper on Abortion and Infanticide, describes the method of diagnosis of the former condition, discusses the means of deciding whether it was natural or induced, briefly refers to the means of deciding whether the induction of abortion was justifiable, and then considers the features of criminal abortion *in extenso*. His chapter on infanticide is very complete.

Mr. T. C. Becker and Dr. John Parmenter are the authors of the final chapter of this section of the subject, on the Determination of Survivorship, a matter that is often of considerable import in determining the devolution and distribution of property.

The biological section of forensic medicine has as its first paper Mr. T. C. Becker's regarding the question of when a medical examination or other inspection of the living human body is permitted or required by courts of law. Dr. J. Clifton Edgar is the author of an excellent paper on Pregnancy, Labor, and the Puerperal State.

Dr. I. C. Rosse reviews the various factors causative of sexual incapacity.

The paper on Rape, by Dr. J. Clifton Edgar and Dr. J. C. Johnston, is a very comprehensive and valuable contribution to the literature of this subject.

Dr. I. C. Rosse is the author of the chapter on Unnatural Crimes, those that exemplify the various forms of sexual perversion.

Dr. W. B. Outten is the author of the paper on the Clinical and Medico-legal Features of Railway Injuries, a subject that is discussed at greater length than any other in these volumes. We do not agree with the author that in the study of traumatic neuroses the surgeon and the neurologist confine themselves too closely to their respective fields of observation; it has been our experience that the surgeon is, as a rule, incompetent to determine the ultimate scope of such neuroses. And the author is nowhere near correct in his assertion that traumatic neuroses

are extremely frequent after railway accidents and injuries, while in accidents under other circumstances they are extremely rare. While the author, whose titles state he is chief surgeon to a railway system, may see more traumatic neuroses due to railway injuries than to other causes, we believe that in a large neurological clinic he will find that traumatic neuroses follow all forms of accident with fairly regular frequency. A personal acquaintance with St. Louis neurologists suffices to inform the reviewer that the strictures on these specialists that occur on page 625 are baseless, and we know that no eastern neurologist of repute feeds "the mind of the patient with suggestions to the intensification of the neurotic state."

The final chapter in the second volume is on Simulated Diseases, by Dr. W. Thornton Parker.

We judge that the editor made a *lapsus pennæ* in the statement that the applications of the microscope to forensic medicine would be treated of in the second volume; presumably the third volume will refer to this branch, and the fourth volume to toxicology.

In the main, the papers are satisfactory and the volumes are likely to prove valuable additions to the literature of forensic medicine and medical jurisprudence.

A Manual of Human Physiology. Prepared with Special Reference to Students of Medicine. By JOSEPH H. RAYMOND, A. M., M. D., Professor of Physiology and Hygiene in the Long Island College Hospital, etc. With One Hundred and Two Illustrations in Text and Four Full-page Colored Plates. Philadelphia: W. B. Saunders, 1894. Pp. 7 to 382. [Price, \$1.25.] [Saunders's New Aid Series.]

The author states as the reason for the existence of this work that twenty years' experience as a teacher of physiology has forced him to the conclusion that in the short time allotted to the study of physiology in medical schools students can assimilate only the main facts and principles of this science, "which lies at the very foundation of a sound knowledge of the healing art"; hence the utility of a manual. We fully agree that a sound knowledge of physiology is indispensable to any knowledge of medical science, but we do not agree that an investigation of "the more recondite and abstruse parts of the subject" would be profitless during the formative period of the physician's life.

If the curriculum of a medical school allots but sufficient time for a cursory survey of so important a subject, then that curriculum should be modified so as to afford sufficient time for a thorough study of it.

We can not commend a book like this that would relegate the teaching of physiology to a place it occupied twenty years ago rather than advance it to the standard of our four-years' curriculum of to-day, and we regret to see such a retrogressive position taken by so competent a physician as we know the author to be.

Diseases of the Chest, Throat, and Nasal Cavities, including Physical Diagnosis and Diseases of the Lungs, Heart, and Aorta, Laryngology and Diseases of the Pharynx, Larynx, Nose, Thyroid Gland, and Œsophagus. By E. FLETCHER INGALLS, A. M., M. D., Professor of Laryngology and Practice of Medicine, Rush Medical College, etc. Third Edition, revised. With Two Hundred and Forty Illustrations. New York: William Wood & Co., 1894. Pp. xxvii-3 to 686 [Price, \$5.]

THE popularity of this work is shown by the appearance of a third edition in a little over a year after the publication of the second edition. In our review of the latter (*New York*

Medical Journal, June 17, 1893, p. 680) we referred to the great improvement in the second edition over its predecessor, and the present volume is worthy of the commendation we then expressed.

La faune des cadavres. Application de l'entomologie à la médecine légale. Par MÉGNIN, membre de l'Académie de médecine. Paris: G. Masson, 1894. [*Encyclopédie scientifique des aide-mémoire.*]

IN this interesting volume the author formulates a law according to which the insects that infest corpses arrive there successively—by squads, so to speak, come these workmen of Death—and in a constant order. He considers that a knowledge of this law will lead to a sufficiently exact determination of the time of death, provided it has occurred within three years. Each squad works for a certain time, during a certain number of months, that vary according to the species, before it is replaced by the squad that invariably succeeds it; and from this it is possible to deduce, given the time in question and the number of squads that have succeeded each other, the probable date of death.

The volume is a valuable addition to forensic medicine.

BOOKS, ETC., RECEIVED.

A Monograph on Diseases of the Breast. Their Pathology and Treatment, with Special Reference to Cancer. By W. Roger Williams, F. R. C. S.; late Surgeon, Western General Dispensary, and Surgical Registrar, Middlesex Hospital. With Seventy-six Figures. London: John Bale & Sons, 1894. Pp. vii-572. [Price, 21s.]

The Disorders of Speech. By John Wyllie, M. D., F. R. C. P. Ed., Physician to the Royal Infirmary, Edinburgh, etc. Edinburgh: Oliver & Boyd, 1894. Pp. viii-495.

Atlas of Clinical Medicine. By Byrom Bramwell, M. D., F. R. C. P. Edin., F. R. S. Edin.; Assistant Physician to the Edinburgh Royal Infirmary, etc. Volume III, Part I. Edinburgh: T. & A. Constable, 1894. Pp. 48.

Transactions of the Medical Association of Georgia. Forty-fifth Annual Session, 1894.

Twenty-seventh Biennial Report of the Trustees, Superintendent, and Treasurer of the Illinois Institution for the Education of the Deaf and Dumb, at Jacksonville. June 30, 1894.

Arsberattelse (No. 10) fran Akademiska Sjukhuset Iupsala for Ar 1892. Afgiven af Professor Dr. S. E. Henschen, Verkst. Direktor Ofverlakare a medicinska Afdelningen.

Treasury Department. Interstate Quarantine Regulations of the United States. September 27, 1894.

Pharmacy a Science. Introductory Address to the Fourteenth Lecture Course of the Albany College of Pharmacy. By Willis G. Tucker, M. D.

Intraligamentous and Retroperitoneal Tumors of the Uterus and its Annexa. By William H. Wathen, M. D. [Reprinted from the *Transactions of the American Gynecological Society.*]

A Contribution to the History of Medicine in Southern California. By Cephas L. Bard, M. D., Ventura, Cal. Annual Address of the Retiring President of the Southern California Society, delivered at San Diego, August 8, 1894.

Twenty-six Cases of Intubation of the Larynx. By Frank L. Day, M. D., Providence, R. I. [Reprinted from the *Boston Medical and Surgical Journal.*]

Charity Organization and Medicine. By George M. Gould, M. D. [Reprinted from the *Medical News.*]

Modern Homœopathy. Its Absurdities and Inconsistencies. By William W. Browning, M. D.

Deformities of the Face and Orthopædics. A Report of

Plastic Operations and also Mechanical Appliances for Covering Distfigurements. By Frank L. R. Tetamore, M. D. [Reprinted from the *New England Medical Journal.*]

Total Extirpation of the Uterus by a New Method. By Albert H. Tuttle, M. D. [Reprinted from the *Boston Medical and Surgical Journal.*]

A Series of Interesting Cases in the Service of Dr. Horace Tracy Hanks at the Woman's Hospital. By John H. Rishmiller, M. D. [Reprinted from the *American Gynecological and Obstetrical Journal.*]

Ueber die Wirkung des Tolysals. Von Dr. Bothe. [Sonderabdruck aus der *Allgemeinen medicinischen Central-Zeitung.*]

Miscellany.

Hot Springs and the Medical Profession.—The following remarks were made by the Hon. William H. Martin at the opening session of the recent meeting of the Mississippi Valley Medical Association:

Mr. President, Ladies, and Gentlemen: Prompted by the strength and independence of perfect physical health, we may at times be prone to disparage the science of medicine, as well as its chosen disciples, but when stricken down by any of the thousand ills that flesh is heir to, how readily we recant that heresy, and invoke the services of the nearest doctor!

Practitioners of medicine are manifestly God's chosen people. On the page of success they receive full credit, not only for the cures effected by their own skill, but also of such cases as in the ordinary course of nature would recover in any event. And if by any chance he should err in the diagnosis and disastrous results ensue, the doctor's mistake is buried far from the sight of human eyes. How differently fares your cousin, the lawyer! The victims of his mistake or ignorance either live to denounce him where all the world may hear, or, if the result chances to be serious, his error is suspended in mid air, where all the world may see and as a fearful admonition to the gazing multitude either to live better or else to employ better counsel.

A literary member of your profession whose life was a beneficence and blessing to all the world for more than four-score years and who, rich in honors and the love of his countrymen, has recently been called to the reward awaiting the good beyond the portals of the grave, expressed his belief that, saving one or two remedies, if all the materia medica was sunk to the bottom of the sea, it would be all the better for mankind and all the worse for the fishes. If I may be allowed to dissent from such eminent authority and indulge a personal opinion, I would say, commend me to the doctor who in the confidence born of knowledge and experience adopts the heroic treatment. And still, I have sometimes doubted whether in this opinion I was not moved by the same impulse that directed the sufferer from toothache. He engaged the services of a dentist, who by means of the modern appliances succeeded in extracting the offending member with little or no pain. When the patient came to settle his bill, and found it was a dollar, he paid it, but, believing it had been earned too easily, he accompanied payment with a protest to the effect that only last week he had carried that same tooth to his neighbor, the blacksmith, that the shoer of horses had caught it with a pair of nippers, and dragged him all over the shop and out into the horse-lot, and for this superior service had only charged fifteen cents.

But even if we should subscribe to the doctrine of Dr. Holmes, we may truthfully add with him that, if every specific

were to utterly fail, if the cinchona trees all died out and coal-tar were unknown, if the arsenic mines were exhausted and the sulphur regions all burned up, if every drug from the animal, vegetable, and mineral kingdom were to disappear from the market, a body of enlightened men organized into a distinct profession would be required just as much as now, and respected and trusted as now, whose province would be to guard against the causes of disease, to eliminate them if possible where still present, to order all the conditions of the patient so as to favor the efforts of the system to right itself, and to give those predictions of the course of disease which only experience can warrant and which in so many cases relieve the exaggerated fears of sufferers and their friends or warn them in season of impending danger.

Nature is the great friend and ally of your craft. Recognition of this is given voice in the holiday attire Hot Springs has donned in honor of your coming. We believe it is to the best interest of the world at large, as well as the medical profession and our city, for a closer relation to be established between us. Disclaiming any intention to detract from the professional skill or scientific knowledge of you gentlemen, we are firmly persuaded that the Great Physician, the divine source of all wisdom, has caused a boiling water to flow from our mountain-side and charged it with curative properties that render it effectual in cases where the profession must sometimes despair.

Believing this, Mr. President, it affords us the greatest pleasure to entertain the flower of the medical profession, that you may make personal investigation and bear witness to what you see, and determine for yourselves whether or not in your future practice you may not sometimes serve your patient best by advising a visit to our Valley of Vapors.

But it lies beyond the scope of my mission to-day to elaborate upon the properties of our water. Indeed, Mr. President, I have been forewarned that in addressing a convention of doctors upon the subject of "water," I can not expect to arouse any considerable degree of enthusiasm. Nor is it my purpose to make you acquainted with the devious and peculiar ways of that original Hot Springs product, the "drummer." The local members of your craft will dissect him at a clinic to be held during the week, and they can impart vast stores of information and anecdote regarding him as well as his legitimate sire, the "drumming doctor."

I am reminded, Mr. President, that my office is to bid you welcome to Hot Springs, and the welcome that I voice will surely be exemplified by cordial treatment during your stay. Just what necessity there may be for extending a formal welcome to our friend, the doctor, I do not clearly see, for if there be a man in the wide world who is welcome at all times and places, whether his visit be professional or social, it is he. It is so at every stage of life. In the hour of tribulation that precedes our advent into this world of beauty, of brightness, and of love, when more than one life lies trembling in the hands of fate, it is into the face of our good friend, the doctor, that we all look for comfort, and whose expression will stamp its impress upon our own.

Or if it be when life's fitful fever is over, and the sands of time have run their course, his kindly face is with us still, and his office is at once to administer relief to the dying and comfort to those who remain.

God bless the educated, kind-hearted, sensible doctor! May the judgment pronounced upon his life's work be as welcome to him as his kindly presence always is to us.

The Mitchell District Medical Society.—The forty-sixth semi-annual meeting will be held at Mitchell, Indiana, on December 27th and 28th, under the presidency of Dr. Joseph

Eastman, of Indianapolis. The programme includes the following papers:

The Right Pulmonary Apex, by Dr. Theodore Potter, of Indianapolis, Ind.; A Report of Additional Operations for Extra-uterine Pregnancy, by Dr. Rufus B. Hall, of Cincinnati; Concretions of the Tonsils and their Influence in producing Sore Throats, by Dr. Lewis C. Cline, of Indianapolis; The Tonsil as a Site of Infection, by Dr. J. A. Thompson, of Cincinnati; Mistaken Notions about Glasses, by Dr. F. C. Heath, of Indianapolis; Hysterical Joint Affections, by Dr. P. S. Conner, of Cincinnati; Squint, by Dr. Dudley S. Reynolds, of Louisville, Ky.; A Review of Ureteral Surgery, by Dr. R. Harvey Reed, of Columbus, Ohio; The Ideal Operation for Varicocele, by Dr. G. Frank Lydston, of Chicago; Public and Private Hospital Work, by Dr. A. M. Owen, of Evansville, Ind.; The Cause and Prevention of Pelvic Inflammation in Women, by Dr. L. S. McMurtry, of Louisville; Some Suggestions in Rectal Practice, by Dr. J. M. Mathews, of Louisville; Cancer of the Rectum, by Dr. Archibald Dixon, of Henderson, Ky.; The Medical Fad of the Nineteenth Century, by Dr. Samuel H. Collins, of Lawrenceburg, Ind.; A Case of Obscure Fracture Complicating Dislocation of the Elbow Joint—Arthrotomy, by Dr. Hugo O. Pantzer, of Indianapolis; Some Cases of Abdominal Section followed by Slow Heart, by Dr. T. A. Reamy, of Cincinnati. Papers will be read by Dr. J. C. Culbertson, of Cincinnati, Dr. J. W. Marsee, of Indianapolis, and Dr. I. N. Love, of St. Louis. A lecture entitled What are we here for? will be delivered by Dr. J. M. Mathews, of Louisville.

The Use of Hypodermics of Alcoholic Stimulants for the Resuscitation of Stillborn Infants.—The November number of the *Therapeutic Gazette* contains an article by Dr. Bedford Brown, of Alexandria, Va., in which he remarks that he, in common with others of the profession, has not infrequently found it difficult and too often impossible to resuscitate still-born infants. During the past three or four years, he says, in several cases of this kind, apparently under the most hopeless circumstances, when all other standard methods had failed, he has resorted to hypodermics of brandy or whisky with the most satisfactory results. Except in some rare cases, where life has ceased some time before birth, he feels satisfied that this remedy could be used to the exclusion of all others with positive reliance.

A hypodermic of five or six drops of the stimulant is administered in each arm, and the circulation and the entire nervous system respond promptly to its action. In the case of the still-born infant, cold, limp, and apparently lifeless, without cardiac action or pulse, and entire absence of respiration, the first act of the infant under the effect of the stimulant is to widely expand the eyelids. Then, in place of the dark, livid hue of the complexion, a sudden rosy color extends over the entire surface; then an inhalation followed by a sudden sharp cry denotes that the machinery of the circulation and of the respiration is in operation and that life is restored. So far, in all instances in which the author has resorted to this remedy, it has never failed to restore the circulation, the respiration, and the heat-germinating processes promptly.

In a recent case of this kind, where the infant's head had been greatly compressed, and where the child appeared to be hopelessly dead, five or six drops of brandy injected in each arm produced magical effects after all other methods had been resorted to and had failed. In several cases in which the author has tried the remedy—all well-marked cases of asphyxia of the newborn—the effects have been wonderfully quick and certain. There is one class of the stillborn, however, says Dr. Brown, in which it can avail nothing. In this class the mother

has suffered alarming ante-partum hæmorrhage, and the infant's circulation has been drained of all blood before birth, and the stillborn in this case presents the appearance of an infant made of pure white wax, instead of the livid hue of asphyxia. A line of distinction must be drawn between these two classes, he says, or we shall be disappointed. In another class of cases—that of stillbirth resulting from the action of ergot on the circulation of the child through the mother—it is available. In this particular condition the tonic contraction of the uterus caused by the ergot has effectually served to cut off the supply of oxygen to the fœtus, and consequently it becomes asphyxiated and is stillborn. It is known, says the author, that a large proportion of infants born under such circumstances are never resuscitated. He cites a case of this kind where hypodermics of whisky were given with the most satisfactory results, and he feels that this treatment will prove effectual in a large majority of cases where the action of ergot has resulted in still-born infants.

With regard to the quantity of stimulants that the system of a stillborn infant can bear, he states that fifteen drops is the largest quantity he has ever given, but thinks that an asphyxiated infant can bear twice that amount with safety.

The Indian Territory Medical Association.—The semi-annual meeting will be held at Wagoner on December 11th and 12th under the presidency of Dr. M. C. Marrs, of Claremore. The following papers will be read: Pneumonia, by Dr. Oliver Bagby, of Vinita, I. T.; Spasmodic Croup, by Dr. W. A. Clark, of Pryor Creek, I. T.; A New Materia Medica, by Dr. F. L. A. Hamilton, of Wagoner, I. T.; The Necessity of Thorough Examination of the Urine, by Dr. G. A. McBride, of Fort Gibson, I. T.; Headaches, by Dr. M. P. Haynes, of Vinita; Puerperal Eclampsia, by Dr. W. C. Hall, of Coffeyville, Kansas; Hystero-epilepsy, by Dr. J. L. Blakemore, of Muskogee, I. T.; Strangulated Hernia, by Dr. J. T. Wilson, of Sherman, Texas; Pott's Disease, by Dr. F. B. Fite, of Muskogee, I. T.; Reports of Abdominal Operations, by Dr. B. F. Fortner, of Vinita, I. T.; Fractures, by Dr. W. B. Miller, of Tallihina, I. T.; Erysipelas, by Dr. L. C. Tennant, of McAlester, I. T.; Traumatic Injuries of the Eye, by Dr. H. Moulton, of Fort Smith, Ark.; Cataracts, by Dr. B. Tiffany, of Kansas City, Mo.

The Consequences of Applying Lotions containing Carbolic Acid.—The *Lyon médical* for November 11th publishes an account of a trial in which the defendant, an apothecary, was charged with selling a lotion containing carbolic acid. During the trial the following question arose: Are lotions containing a two-per-cent. solution of carbolic acid capable of giving rise to gangrene in a finger that has been punctured with a piece of zinc which has penetrated under the nail? The druggist alleged that the first dressing with the antiseptic was the usual custom; that the Academy of Medicine, the School of Pharmacy, and the druggists, in conformity with the custom—a custom which had become a right—might dispense carbolic acid without a physician's prescription. However, after hearing the report of M. Langier, the medical examiner, the court judged that there had been, on the druggist's part, a non-observance of the regulations in delivering the carbolic acid without a prescription, and a verdict was given in favor of the plaintiff.

The External Treatment of Acute Articular Rheumatism.—The *Presse médicale* for November 3d publishes the following formulas: Salicylic acid, five drachms; pure alcohol, three ounces and a half; castor oil, seven ounces; chloroform, seventy-five grains. Compresses saturated with this solution are to be applied to the diseased parts and then covered with

some impermeable material and fastened firmly by means of a flannel band. These compresses are to be applied night and morning.

M. Bourget, of Lausanne, uses a similar remedy, which is applied to the painful articulations in the form of an ointment composed of salicylic acid, lanolin, and oil of turpentine, each, two drachms and a half; lard, two ounces and a half.

The Pyogenic Action of Croton Oil.—The *Presse médicale* for November 10th contains a review of an article on this subject by M. Dmochowski and M. Janowski, in which the writer says that the authors, thinking that the oil possessed only an irritating action, associated it with the typhoid bacillus in order to increase its pyogenic properties. But they were very much astonished to see the oil alone produce suppuration, in spite of all the antiseptic precautions taken. After a systematic study of this question they drew the following conclusions: Croton oil produces in the dog inflammation of various degrees, which depend on the dilution of the oil. Strong solutions produce cutaneous necrosis, sanguineo-serous inflammation, and a very extensive cellular infiltration. Suppuration is not produced with concentrated solutions, because the necrosis sets in before the suppuration can be produced. One of the degrees of inflammation produced by croton oil without the aid of micro-organisms is established by suppuration. To produce suppuration requires dilutions of from one in twenty to one in a hundred, which sometimes cause necrosis of the skin and of the cellular tissue. Suppuration is not, then, a specific reaction of the tissues to specific excitants, but a symptom dependent on the intensity of the excitation. Strong and moderate solutions give a hæmorrhagic character to the inflammation. Weak solutions may produce a passing serous inflammation with a limited infiltration under the form of a more or less circumscribed tumor. In rabbits solutions of croton oil of from one in thirty to one in sixty cause benign suppuration which sets in relatively late, at the end of fifteen days.

The Tongue as an Ophthalmological Appliance.—The *Lyon médical* for November 18th contains an abstract from *La Médecine moderne* in which the writer says that M. Bourgeois described a case occurring in Brittany, where a foreign body was extracted by means of the tongue. He also goes on to say that M. Le Mar 'Hadour, naval physician at Cao Tang, writes to the *Journal de médecine et de chirurgie pratiques* that this method is systematically practiced by the Annamite doctors. The tongue is the brush employed and serves as the vehicle to carry topical applications to the conjunctiva. The treatment of purulent conjunctivitis, for example, consists in applying to the eye by this means a powder composed of elder flowers, mint, chamomile, sac-vi (a sort of coleopterous insect), duong-coui (an aromatic root), copper sulphate, and camphor. The copper sulphate and the aromatic herbs are natural antiseptics. The sac-vi, in spite of its strangeness, possesses in a measure the irritating properties of cantharis, and may have the modifying properties comparable to those which we find in jequirity.

With regard to this strange brush, there are perhaps not so many inconveniences attached to that mode of carrying substances to the eye as there may seem to be. The mouth of the Annamite, in reality, is not, owing to the habit of chewing the betel nut and to the varnishing of the teeth, the microbial cavern that it is with us, says the writer, and this method, although not to be recommended, is consequently not so reprehensible. It is interesting, he says, to note the coincidence of the appearance of this strange method among us and at Tonkin. This coincidence is not an isolated one, and the author thinks he may be able to show others more surprising still between the yellow physician and the white physician.

Original Communications.

THE DIAGNOSIS AND TREATMENT OF
TUBAL PREGNANCY.*

WITH REPORT OF A CASE.

BY IRVING S. HAYNES, PH. B., M. D.,

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EXTRA-UTERINE gestation occurs about once in twelve hundred cases of pregnancy. One writer states one to twelve thousand; another, one to three hundred and thirteen. It is a somewhat rare condition, and one of very serious import to the patient. If undiscovered until rupture has taken place, it is usually fatal, either from the hæmorrhage or from the septic conditions induced by it. If it is discovered previous to rupture, its removal is usually not very difficult and the attending dangers are slight.

In this paper I shall confine myself to the tubal variety of extra-uterine foetation.

The opinion of modern writers seems to be that all forms of extra-uterine impregnation, excepting ovarian, take place in the tubes; that later about forty per cent. of the ova are extruded from the tube, either into the abdomen or uterus, while sixty per cent. remain and develop as tubal pregnancies.

In the tubal variety early rupture is the rule, followed usually by the death of the patient. However, if the diagnosis of this condition can be determined previous to rupture, and an operation performed for the removal of the tube and its contents, the termination is usually successful. The whole interest, then, centers about the phenomena by which we are to make the diagnosis.

As a rule, the symptoms of tubal pregnancy are the same as those of normal pregnancy up to the time that pain and irregular hæmorrhage occur. Briefly recapitulated they are as follows: Morning sickness of the kinds usually described; mammary changes, consisting of an increase in the size of the gland, tingling or other irritable sensations; enlargement of the areola; stoppage of the monthly flow.

At this point appears the important symptom of pain. The pain is sudden, colicky, and felt in the iliac region of the side where the sac is situated. The pain is soon followed by a bloody flow, irregular in duration and recurrence.

If an examination is now made, the uterus will be found somewhat enlarged, but to a less degree than in normal pregnancy. The cervix is also softened and the os slightly opened. The uterus may be crowded forward or to one side by a tumor behind or beside it. This tumor is oval or round, freely movable (if no adhesions have formed), elastic, tense, and sensitive.

Before considering the diagnosis I will rehearse the history of my case:

Mrs. F., aged twenty-eight years; married in July, 1893.

History.—Was regular until January, 1894; should have been unwell about the 20th, but was not; had morning sickness so bad that she would throw up her breakfast at times; her breasts enlarged and became tender.

There was no show in February. But in March she was taken with severe pain at about the time her monthly was due, followed by the discharge of considerable blood in which were "pieces of flesh" (clots and membranes). Bloody discharge continued for three weeks. Was regular in April and May. In June she did not menstruate. She had no morning sickness, but her breasts became larger and were tender.

On the 16th of July she was taken with pain, followed by a bloody flow. The pain was felt in the external genitals and perinæum, never in the iliac fossa, and disappeared with the onset of the hæmorrhage. The flow continued three days, and then gradually subsided. In just a week (July 23d) the attack returned in exactly the same way. First, severe pain in the external genitals, followed by the hæmorrhagic discharge. She came to my office on the evening of the 23d and gave the above history. I suspected extra-uterine pregnancy, and made an examination with that in mind. The uterus was enlarged to the size and shape of a large pear, about three or three and a half inches long and correspondingly increased in girth. It had settled well down into the pelvis, but was freely movable in all directions without pain. No enlargement of the tubes could be felt, though special effort was made for this purpose. There was a thick discharge on the finger, looking and smelling like menstrual blood.

Diagnosis.—I told the woman that she was pregnant, and was inclined to think that I had one of those patients that lose blood once or twice at the beginning of their pregnancy.

I gave some two-grain ergotin pills to take every four hours, and ordered rest in bed. She reported on the 25th that the bleeding had ceased. From this time until the 17th of August I was on my vacation. On the 29th she called and said that the hæmorrhage had not returned until the 1st of August (nine days after the second attack). Then it began again as bad as ever, preceded by severe pain in the same region as before. The pain lasted longer than with the first two seizures. The hæmorrhage continued three days and then stopped. She used the ergotin pills during this time. In a week the same proceedings were repeated, with the exception that the pain and loss of blood were continuous up to this time (August 29th).

I did not make an examination at this time as the case seemed to be one of abortion, but told the woman to go home and in the morning I would operate, intending to curette and pack the uterus. In the morning preparations were made for this operation.

Dr. Dearden administered ether. When the patient was thoroughly anaesthetized, as a preliminary precaution I made a careful examination. This was what was disclosed: The cervix was hard and the os firmly contracted; the uterus normal in size and freely movable. No mass was felt at the left of the uterus, but as soon as the fingers were carried to the right side a movable tumor was found. It was close to the uterus and connected with it, though the fingers could be carried up between the two. It was of the size of a hen's egg, elastic, not boggy, and with a smooth surface.

My diagnosis was extra-uterine pregnancy of the tubal variety, and it was confirmed by Dr. Dearden. The administration of ether was stopped and preparations were made for the more serious operation, which, after half an hour, was undertaken, with Dr. Wright to administer the anaesthetic and Dr.

* Read before the Society of Alumni of Bellevue Hospital, October 3, 1894.

Dearden to assist me. Mention of the operation will be deferred until considering the treatment of tubal pregnancy.

As before stated, the interest centers about the question of diagnosis. If that is plain, the successful termination of the case lies within the reach of the physician and patient. All writers are unanimous in stating that the diagnosis is comparatively easy after rupture has occurred; and they are just as fully agreed that the diagnosis is difficult and uncertain previous to this undesired event. The chief purpose of this paper is to ask the questions, Can tubal pregnancy be diagnosed previous to rupture? If it can, what are the pathognomonic signs? and to record the answers of various writers. The time of rupture is important to determine. Playfair (8) states it as from the fourth to the twelfth week, rarely later. Pozzi (16) says early rupture is the rule, in most of the cases during the second month. The size of the ruptured cyst is usually that of a hen's egg.

My case had gone anywhere from seventy to ninety days and the sac had not ruptured. I do not think that rupture would have been long delayed, as the sac was very thin and tore slightly while I was removing it.

It is evident that we must make the diagnosis previous to the beginning of the third month, and it would be better if it could be accomplished before the middle of the second month.

I will introduce some quotations from men who have had to do with this condition.

Lusk (1): The diagnosis of extra-uterine foetation is based on the existence of the signs of pregnancy, exclusion of an ovum within the uterine cavity, and the presence of a tumor external to the uterus. . . . A tubal swelling and enlargement of the uterus, associated with suppression of the menses, often followed after a brief period with paroxysmal pains radiating from the side of the pelvis upon which the affected tube is situated, and with the expulsion of the uterine decidua at the end of the second or in the course of the third month, is to be regarded with suspicion. But a tubal sac may be caused by a number of pathological conditions. Uterine changes in the early months are inconstant. These sometimes correspond to those of ordinary uterine gestation, but often there is neither perceptible enlargement nor cervical softening to indicate pregnancy.

Ross (2): The vagina may be of a purplish color. Cervix perhaps soft and patulous. Uterus pressed forward or backward to one side or the other. An irregular swelling that feels like no other swelling, neither a pus-tube nor ovary, that feels knotty and boggy, will be found in its neighborhood. Sometimes the mass is smooth, rounded, and freely movable. Some claim the tumor pulsates, but other pelvic enlargements also give the sense of pulsation to the examining finger.

Vertsinski (3), in a Russian journal quoted in the *Lancet*, calls attention to one characteristic symptom in the differential diagnosis between tubal gestation and oophoritis, which had been described by Thomas as far back as 1873, fell into oblivion, and in 1889 was resurrected by Professor Lebedeff. The symptom is the varying size of the tumor in inflammatory conditions of the tubes and

ovaries. The tumor is sometimes as large as an orange, while on other occasions, and often in a few days only, can hardly be defined.

This periodical variation in size is closely connected with menstruation and ovulation.

Smith (6): The physical signs, and these with reference to the earlier months, would be the development of the uterus with the accompanying displacement, according to the size and situation of the fruit sac. Cervix is usually patulous and dilated; uterus empty; tumor beside or behind the uterus, of nearly fluid consistence, tense and tender. . . . A positive diagnosis can not be made within the first eight weeks without an exploratory incision.

Hughes (12) and Smolsky (13): The size of the womb should be compared with the size it should be at the supposed period of pregnancy. Careful search should be made in the neighborhood of the Fallopian tube, fundus of the womb, and ovaries, and if an enlargement is discovered, so much the better. The question is then, What is tumor due to? Can be answered by inquiring into the previous history of the case, and by carefully comparing the symptoms of the disease which it might resemble with the symptoms of pregnancy. The size of the tumor should be compared with the size that the foetal sac should be at the supposed time of gestation. Smolsky states that in tubal pregnancy the sac in the first month reaches the size of a pigeon's egg; in the beginning of the second, the size of a walnut; midway between the second and third, that of a hen's egg; in the third month, that of a fist; in the fourth month, that of two fists. All writers agree upon the mammary changes that take place, and that they are similar to those that take place during normal pregnancy.

Regarding the symptoms of pain and bloody flow, Lusk says that paroxysmal pains are frequent in other forms of tubal disease, and menstrual disturbances are common phenomena in uterine derangements.

Ross states that some have no pain. Others agree that pain is the rule, and is felt over the site of the affected tube.—Laurence (4), Lewers (5), Smith (6), Playfair (7 and 8), Cullingworth (10), Hunter (14), Banga (15), Pozzi (16). In my case the pain was severe, but grew easier as soon as hæmorrhage started. The situation of the pain differed from that of any case I have seen recorded, in that it was never felt over the tube, but always in the external genitals. I have taken the precaution to make this point certain.

Hæmorrhage follows in every case. Its duration is uncertain and its return irregular. As a similar flow occurs in diseases of the uterus and its appendages, it is not a special sign of tubal pregnancy.

My patient bled at intervals of a week for four weeks. The flow lasted for three days, until the last attack, when it became continuous. There is one point in the history of the cases reported that is brought out distinctly by Lewers and Hughes. It is the fact that these patients may have aborted a short time previous to the tubal conception. In my case there was an abortion when the patient was two months and a half pregnant, and two months and a half before the abnormal impregnation.

Concerning the expulsion of the decidua or its removal by the curette, Smith lays this force upon it, that in proper hands the curette will clinch the diagnosis. Hughes says the presence of the decidua is a symptom of great importance. Lusk states that the expulsion of the decidua, although a valuable sign, is not a constant occurrence.

From these quotations we see that there are no pathognomonic symptoms for the diagnosis of tubal pregnancy.

The symptoms as they occur are, first, the morning sickness or other neurotic disturbances common to normal and abnormal pregnancies alike. Then there are the mammary changes that are alike in both cases, consisting of enlargement, sensitiveness, secretion of milk, widening of the areola. The monthly period is missed. The woman thinks herself pregnant. In from two to three or four weeks after the monthly period is passed she is suddenly seized with an attack simulating colic. The pain is usually felt in the pelvic region, in either of the iliac fossæ, or, as in my case, in the external genitals.

The pain gets easier with the onset of a bloody discharge. The hæmorrhage lasts from two to four days, recurring at weekly periods or oftener. Later it may become continuous. If an examination is made about the second

amination, though I did not find it so, and I was examining especially for extra-uterine pregnancy. Later there will be no difficulty in making out an oval, elastic tumor with a smooth surface at the side and closely joined to the uterus. The tumor may be sensitive to pressure. Blood will be found upon the examining finger that looks and smells like menstrual blood.



1. Rupture over the placental site. 2. Uterine end of the tube, with a straw inserted. 3. Fimbriated extremity of the tube.

At this later examination the uterus may be smaller in size than it was at the first one. In my case this difference in size was especially noticeable. At the first examination, finding no tumor about the uterus, I had no hesitancy in telling the woman she was pregnant. In the second the diminished size of the uterus was manifest at once. It was of about the normal size, and the cervix was hard and the os firmly contracted. The changed condition in the uterus was due primarily to the situation of the developing ovum, and secondarily to the ergotin she had taken. At this point the question arises, Would it not be a means for diagnosis to give ergot for a few days in order to see if in a supposed case of abnormal pregnancy the uterus did return to its normal size? If it did, you would be certain that the ovum was without the uterus. At this second examination the enlarged tube was easily felt, its oval outline determined, its close connection with the uterus demonstrated, and its freedom from adhesions evident. To be sure, the patient was under the influence of ether, but this emphasizes the statement that the examination is more satisfactory when the patient is in an unconscious state, and physical conditions not manifest when she is conscious may be very distinct then. The absolute demonstration of tubal pregnancy is possible only by an exploratory cœliotomy. This operation is practically without risk, at least it is to be preferred to a continuance in a state of uncertainty regarding the exact diagnosis, since the danger of rupture is so great in case there is a fecundated ovum in the tube.

Treatment.—Three methods of procedure have been advocated: The first, by the injection into the sac through a



1. The ovary. 2. The fimbriated extremity of the tube. 3. The uterine extremity of the tube, into which a straw has been inserted.

month you will find the cervix soft and the os somewhat open. The uterus will be increased in size. You may find the tube enlarged or you may not. In the light of my single case, I should think it good practice to give ether and make a more thorough examination than can be done without it. The tube must have been enlarged at my first ex-

hypodermic needle of solutions of morphine, atropine, or strychnine. The dangers attending this seemingly simple operation are so great that it is performed no longer. There are seventeen cases recorded of operation by this method, with eleven deaths (references 17 and 18). The death rate is sufficient to condemn the operation.

Second, the treatment by electricity. This is a method chiefly used in this country; no foreign writers advise it, except the Russians (references 17 and 18). Some writers here are so enthusiastic over the use of electricity that they advise it exclusively. However, its use is not without danger. Three deaths and four serious accidents are recorded against it (18). The action of the current may cause rupture of the tube, an occurrence not to be desired. Moreover, if the result is pronounced satisfactory at the time, a mass is left behind that may not entirely disappear; it is a true foreign body that may become encysted

previous to rupture is from the hæmorrhage that follows an unintentional rupture of the sac. But this can easily be guarded against and arrested if it happens.

There are no special directions for the operation. The strict rules of modern aseptic operations are to be followed. Suture the abdominal layers separately, closing the wound tightly, without a drain.

If the intestines have been handled much, or there have been numerous adhesions to break up, I should think that Dr. Wiggin's (19) plan of flooding the abdominal cavity with a hot normal saline solution would be of great benefit.

As we are not dealing with ruptured tubes I will not refer to the difficulties met with in those cases.

The patient I had was operated upon after the above-described plan.

The history was uneventful and recovery perfect. The recovery was delayed slightly by the gaping of the wound and its healing by granulation and cicatrization.

The specimen was oval, with a smooth surface, and of the size of a hen's egg. On section it shows a central cavity—the amniotic cavity—surrounded by a layer composed of organized blood-clot or chorionic growth.

There was no distinctly formed fœtus. The specimen is an exact reproduction of one illustrated in the *International Medical Annual* for 1893, page 445, Fig. 58.

The ovary shows the corpus luteum of pregnancy.

References.

1. William T. Lusk. *N. Y. Journal of G. and Obs.*, No. 2, vol. vii, 1891, p. 78.
2. J. F. W. Ross, of Toronto. *Am. Journal of Obs.*, No. 1, 1893.
3. Vertsinski. *Lancet*, 1892, p. 16.
4. Austin Laurence. *Trans. of the Obs. Soc. of London*, 1892-'93, p. 439.
5. A. H. N. Lewers. *Lancet*, March 10, 1894.
6. J. F. Smith. *N. Y. Journal of G. and Obs.*, 1893-'94, p. 460.
7. W. S. Playfair. *London Obs. Trans.*, vol. xxxiv, 1892.
8. Same in *System of Midwifery*.
9. J. Bland Sutton. *London Obs. Trans.*, vol. xxxiv, 1892.
10. C. J. Cullingworth. *London Obs. Trans.*, vol. xxxiv, 1892.
11. W. T. Helmuth. *N. Am. Journal of Homœ.*, 1894, p. 370.
12. D. Hughes. In the *Trans. of the Internat. Congress of Obs. and Gyn.*, 1894, p. 641.
13. Smolsky. Quoted by Hughes.
14. C. H. Hunter. In a paper read before the Minnesota Academy of Medicine, February 1, 1893.
15. Henry Banga. Transactions of the Chicago Gynæcological Society, published in the *Am. Journal of Obs.*, 1893, p. 135.
16. Pozzi. *Medical and Surgical Gynæcology*, vol. ii.
17. *International Medical Annual*, 1893, p. 447.
18. Quoted by Pozzi.
19. F. H. Wiggin. *Med. Record*, August 11, 1894, p. 168.

Chinese Dentistry.—The *Times and Register* says: "The Chinese dentist makes artificial teeth from the femur of an ox, and inserts them by passing a copper wire through them and fastening to the adjoining teeth."



1. Ovary, showing the corpus luteum of pregnancy. 2. Amniotic cavity.

and partially absorbed, yet which ever remains as a menace to the life of the patient, because it may become the seat of tubercular or malignant growths or break down and produce septic infection.

The third method is the removal of the tube and its contents by a median cœliotomy.

Werth's suggestion (18), that ectopic pregnancy is always to be regarded as a malignant growth and treated as such, is to be followed in preference to the use of an injection or electricity.

Early operative treatment is almost always successful. The only danger peculiar to the operation when performed

THE DIFFERENTIAL DIAGNOSIS OF TRAUMATIC INTRACRANIAL LESIONS.

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(Continued from page 716.)

FRACTURES CONFINED TO THE VERTEX.

CASE LXXXVIII. Symptoms.—Delirium on the second, and a convulsion on the fifteenth, day after the original injury alone noted and significance not recognized. Late symptoms followed an operation for fractured patella with use of anæsthetic six months afterward; general convulsions on the succeeding day, with wild delirium, and temperature 103° ; the temperature and general condition became normal after twenty-four hours. One month later general convulsions recurred after another operative interference, and continued thirty-six hours, preceded by tonic spasm of affected (left) limb, and succeeded by delirium and death at the end of nine hours. Each convulsion was preceded by restlessness and wide dilatation of both pupils, and in about fifteen seconds began in the left face, extended to the right face, to the left extremities, and finally became general. Temperature rose in twenty-four hours from 101.1° to 104.8° , and afterward declined to 104° .

Lesions.—Extensive laceration of the right temporo-sphenoidal lobe, three inches and a half by an inch and a half in its diameters, involving almost the whole of the second and third, and a little of the first, convolutions; the whole lobe was greatly atrophied, indurated, and pigmented. Circular laceration upon the anterior border of the right frontal, and another, an inch and a half in diameter, upon the inferior surface of the left frontal lobe, in the second and third orbital convolutions. These lacerations were all necrotic.

CASE LXXXIX. Symptoms.—Hæmatoma of left parietal region; unconsciousness which was permanent; right facial paralysis, and rigidity of both arms and right leg; and twenty-four hours later, paralysis and rigidity of right arm; paralysis of right leg probable. Temperature on admission, 102.6° ; pulse, 96; respiration, 36; later temperature, 105° . Death in thirty hours.

Lesions.—Epidural hæmorrhage compressing laterally the whole left cerebrum; general hyperæmia and punctate extravasations.

CASE XC. Symptoms.—Consciousness partially lost and soon regained; vomiting frequent; later, somnolence and coma. Temperature on admission, 100.2° ; pulse, 48; temperature rose to 105.4° . Death in twenty-seven hours.

Lesions.—Compound comminuted fracture of right frontal bone; corresponding laceration of right frontal lobe, through subcortex nearly to lateral ventricle, with cortical hæmorrhage extending over parietal region; slight pial hæmorrhage over left occipital lobe; minute vessels filled with coagula in all parts of the brain.

CASE XCI. Symptoms.—Coma; stertor; pulse and respiration slow; second day—right hemiplegia; eyes deviating to the right; pupils normal; pulse feeble and rapid; respiration inadequate from pulmonary œdema. First temperature, some hours after admission, 101.6° ; second day, 103.8° to 105.4° ; third day, 106.4° . Death in sixty hours.

Lesions.—Laceration of left temporo-sphenoidal lobe extending into occipital region, with cortical hæmorrhage over left motor area, and to base of occipital lobe; general hyperæmia and thrombosis.

CASE XCII. Symptoms.—Unconsciousness and irritability which continued one week. Temperature, 99° to 100° ; second

and third weeks, delirium and continued irritability; fourth week, apathy, rambling speech, and delusions, after which patient was transferred to another hospital, where he died after operation.

Lesions.—Fracture in left occipito-parietal region; laceration of inferior surface of both frontal lobes.

CASE XCIII. Symptoms.—Coma; stertor; rapid pulse. Temperature fell to 95° . Death in four hours.

Lesions.—Gunshot fracture of right frontal bone; ball entered anterior extremity of fissure of Sylvius, traversed right frontal lobe just below the cortex, parallel to its curve and a little backward, crossed median fissure into left parietal lobe, impinged upon the left parietal bone, which it fractured, and fell back into its track half an inch below the surface, where it rested; little intracranial hæmorrhage.

CASE XCIV. Symptoms.—Coma, soon becoming profound; normal pupils; general muscular twitching. Death in twelve hours.

Lesions.—Gunshot fracture of right frontal bone; ball traversed right hemisphere nearly in its antero-posterior diameter, just above corpus callosum, impinged upon inner surface of occipital bone, and fell into inferior occipital fossa above the dura; considerable cortical hæmorrhage.

CASE XCV. Symptoms.—Gunshot wound of right temporal region; unconsciousness; no other immediate general symptoms; pulse, 70; temperature, 99° ; consciousness soon restored; mental processes normal but sluggish; some discharge of brain matter followed an unsuccessful attempt to locate and remove the ball on the second day; wound afterward practically healed; mental condition apathetic, rational, but without any manifestation of interest in surrounding persons, things, or circumstances; urine and feces voided without any indication of consciousness. Temperature, 100° to 103.6° , usually 101° +. Death in thirty days.

Lesions.—Gunshot fracture of right frontal bone; ball entered middle of right third frontal convolution, passed through central portion of both frontal lobes to a point just behind ascending arm of fissure of Sylvius in upper portion of island of Reil, and rested in a cavity five eighths by seven eighths of an inch in its diameter, surrounded by clot and brain detritus.

CASE XCVI. Symptoms.—Shock; consciousness retained; restlessness and delirium; temperature, 100.2° ; rose to 104.6° . Death on the third day.

Lesions.—Compound fracture of left frontal bone with corresponding laceration of brain and meninges; general hyperæmia and thrombosis.

CASE XCVII. Symptoms.—Unconsciousness; dilatation of pupils; rapid pulse and respiration; temperature, 100° . Death in four hours.

Lesions.—Deep laceration of inferior surface of right temporo-sphenoidal and slight laceration of anterior border of left temporo-sphenoidal lobe; pial hæmorrhage over superior surface of both hemispheres.

CASE XCVIII. Symptoms.—Unconsciousness followed by delirium soon after admission; extensive wounds of the scalp; normal pupils, right becoming dilated a little later; temperature, 98.2° ; in two hours, 99° ; pulse, 76; respiration, 22; delirium increased; pulse and respiration unchanged. Death in four hours.

Lesions.—Compound double camerated fracture, involving right parietal eminence; skull very thick and unsymmetrical; posterior fossæ large, middle and anterior fossæ contracted; extensive pial hæmorrhage, confined to meshes of pia, forming a thin sheet which covered superior and outer surface of right hemisphere and inferior surface of both occipital lobes; very marked general hyperæmia, especially on right side and in pons

and medulla; some minute hæmorrhages upon posterior border of right cerebellum and upon the medulla.

CASE XCIX. Symptoms.—Temporary unconsciousness; no other primary general symptoms; temperature on admission, 98.4°; second day, 101.6°; afterward, 99°+. On the tenth day, restlessness and slight delirium; eleventh day, slight chill and increased delirium, which became permanent, but of less active character; fourteenth day, post-cervical rigidity; and on the fifteenth, slight general convulsion; mental condition sluggish; pupils remained normal; respiration, 18 to 22; pulse, 104 to 112. Temperature on the evening of the tenth day rose to 101° and on the eleventh day to 104.6°; it varied from that point to 103° till the fifteenth day, when it rose progressively and reached 107.4° on the sixteenth day, and death ensued.

Lesions.—Compound fracture with slight depression above right supra-orbital ridge, confined to external table; subarachnoid purulent effusion over both frontal lobes, encroaching upon parietal and extending into median fissure.

CASE C. Symptoms.—Gunshot wound of right side of the head. Left facial paralysis on second day; hernia cerebri on the third day; mental condition deteriorated and paralysis increased. Patient transferred to Bellevue on the thirtieth day; then suffering from hysteria and melancholia which had preceded the infliction of the injury; restlessness; loss of control of urine and fæces; left hemiplegia; slight dilatation of pupils; articulation difficult; sensation normal; pain in right supra-orbital region and at seat of the wound; mental processes slow. Temperature, 100°; pulse, 120 to 140; respiration, 20. At site of injury there was an infected granulating wound through which a probe could be passed into the brain. Four days later, under ether, an attempt was made to locate the ball, and a cavity was found to exist, extending nearly transversely inward two inches and a half, with moderately firm and well-defined wall, and having a small bit of bone at the bottom. The ball was not discovered. Temperature from admission had risen to 102.6° at time of exploration. Death occurred two days later; temperature then 107.4°.

Lesions.—Gunshot fracture of right temporal bone in squamous portion; osseous wound had been enlarged by trephination; slight hæmorrhage over right occipital lobe and a few threads of yellow exudate in same region and on the right side of the median fissure; ball passed through lower face area, nearly transversely inward to a point beneath the median surface and just above the calloso-marginal fissure; was then deflected backward at a right angle by the resistance of the falx cerebri, and was lodged an inch behind the cavity recognized at the time of exploration. General hyperæmia.

CASE CI. Symptoms.—Gunshot wound of left side of the head. Unconsciousness, which continued till death, five hours later; slight dilatation of left pupil. Temperature one hour after reception of injury 98.2°; two hours afterward, 97.6°; fifteen minutes before death, 99°. Pulse, 118 to 132; respiration, 28; later, 32 and stertorous; fifteen minutes before death, 7; and finally 2.

Lesions.—Gunshot fracture of squamous portion of left temporal bone in its posterior portion, an inch below temporal ridge; foyer of entrance triangular; each arm half an inch in length; bone comminuted, and the fragments penetrated the cerebral cortex. Ball entered temporal lobe between two large branches of the meningeal artery, passed transversely across the brain immediately below the cortex, and was lodged in the right parietal lobe; cortical hæmorrhage from injury of the right parietal lobe by the ball in its course, extended under the tentorium and over the pons and medulla, and was apparently the immediate cause of death; cerebral hyperæmia confined to the vicinage of the bullet track.

CASE CII. Symptoms.—Unconsciousness, which continued till death at the end of three hours; general muscular rigidity. Temperature, 101°; pulse, 98; respiration, 20.

Lesions.—Penetrating wound and fracture of left temporal bone, above the ear, three eighths of an inch in diameter, from a blow inflicted with a revolving screw-driver. The instrument passed through both hemispheres, wounding the dura upon the opposite side, and involving the posterior part of the left corpus striatum and both optic thalami; a thin cortical hæmorrhage covered both hemispheres and the superior surface of the cerebellum.

CASE CIII. Symptoms.—Patient, nine days previous to admission, came home with head bleeding, vertigo, nausea, and feeling of weakness, from an injury of unknown origin, and was said to have been afterward treated for pneumonia. On admission, he was found to have compound depressed fracture of right parietal bone, and the wound was foul and suppurating; mental condition stupid; left hemiplegia and right facial paralysis; deviation of tongue to the left; opposite radial pulsations symmetrical; slight dilatation of left pupil; coma supervened an hour later, and convulsive movements of the right face four hours and a half after admission. After elevation of the depressed bone, and escape of a small amount of pus from below the dura, the pupils became normal, and there was a single clonic convulsion of the left side. Death occurred thirteen hours and a half from time of admission. Temperature for twelve hours was 106°+, and afterward 107.2°; one hour post mortem, 107.4°. Pulse, 118, 170, 158; respiration, 44 to 60.

Lesions.—Compound depressed fracture of right parietal bone, just behind coronal suture, and half an inch from median line; purulent subarachnoid effusion over convex surface of right hemisphere, which anteriorly extended to the base; superficial laceration of right parietal lobe beneath the site of fracture, which was prolonged subcortically, both anteriorly and posteriorly, but did not reach the motor area; pus from this laceration had escaped in small quantity into the arachnoid cavity; left hemisphere markedly hyperæmic and moderately œdematous.

CASE CIV. Symptoms.—Consciousness primarily retained; thirty minutes later general convulsions followed by complete unconsciousness and an apparently moribund condition. Elevation of a depressed portion of the left parietal bone restored consciousness and some strength to the circulation. Convulsions recurred next day, and death ensued in twenty-three hours. Temperature, 102.4° to 104.4°; pulse, 108 to 160; respiration, 32 to 60.

Lesions.—Fracture confined to the vertex; epidural hæmorrhage of small extent, and laceration of inferior surface of right frontal and temporo-sphenoidal lobes. (Infant, aged twenty-two months.)

ENCEPHALIC INJURIES WITHOUT FRACTURE.

CASE CV. Symptoms.—Violent delirium for two days; recurred on the sixth day, followed by unconsciousness and hyperæsthesia. Temperature, 103° to 104°; afterward, 100° to 103°; final temperature, 103°. Death in twelve days.

Lesions.—Pial hæmorrhage over left occipital lobe, extending into median fissure; subarachnoid serous effusion.

CASE CVI. Symptoms.—None recognized till fourth day, when there were four unilateral convulsions. A single one occurred on the fifth day, and they then continued with increasing frequency till death on the eighth day. Each one began by a twitching of the facial muscles, with head and eyes turned to the left, and extended to the left arm, and finally to the left hand. Temperature on admission, 100°; twelve hours later,

103°; then 103° to 104°, till sixteen hours before death, when it rose to 105°.

Lesions.—Extensive laceration of right temporo-sphenoidal lobe, with cortical hæmorrhage over whole right hemisphere.

CASE CVII. *Symptoms.*—Mental condition clear, but dazed, on admission ten hours after reception of the injury; extreme muscular tremor, followed in two hours by a general convulsion; from this time periods of general convulsions, with intervals of unconsciousness or delirium, lasting about six hours, alternated with periods of quiescence of equal length; no initial symptom. Death in two days.

Lesions.—Deep laceration of right frontal lobe, anteriorly and externally, extending into parietal region; cortical hæmorrhage, covering right frontal lobe, right parietal lobe anterior to the Rolandic fissure, and the temporo-sphenoidal lobe, both laterally and inferiorly.

CASE CVIII. *Symptoms.*—None. Found dead in an upright position, leaning against a fence.

Lesions.—Lacerations and contusions covering greater part of left frontal and temporo-sphenoidal lobes; cortical hæmorrhage over the whole left hemisphere.

CASE CIX. *Symptoms.*—Coma; stertor; contraction of pupils; full pulse; rapid respiration. Temperature, 101°+. On the third day coma more profound; dysphagia; continued irritability and restlessness. Temperature, 104·5°. Death in four days; temperature, 107·4°.

Lesions.—Small laceration at left parieto-occipital junction; cortical hæmorrhage over posterior part of left parietal lobe; general hyperæmia.

CASE CX. *Symptoms.*—Coma, restlessness, and general hyperæsthesia; temperature, 103·4°; pneumonia discovered on the second day. Death on the third day.

Lesions.—General hyperæmia, with some punctate extravasations; organized membranous effusion, studded with calcareous nodules, over left hemisphere.

CASE CXI. *Symptoms.*—Sudden coma; stertor; double facial paralysis; complete right hemiplegia and hemianæsthesia; temperature, 99° to 103°. Trephination and drainage of serous effusion from the base by position of the head was followed within six hours by return of consciousness, mental clearness, power of articulation, and decline of temperature to 98·6°, and this improvement in condition continued fourteen hours; slight chill then preceded a progressive rise of temperature to 104·6°, and death occurred ten hours later.

Lesions.—Interior of left occipital lobe disintegrated by apoplectic clot, which extended into both lateral ventricles; consequent fall from a cab caused a laceration of external border of right cerebellum and cortical hæmorrhage, which spread over the pons into the transverse fissure.

CASE CXII. *Symptoms.*—No primary general symptoms; temperature, 100°. Second day, delirium. Fourth and fifth days, headache. Sixth day, restlessness, irritability, and failing strength; mind clear. Eighth day, general muscular rigidity most marked in right side and arm, and, a few hours previous to death, perforating ulcer of the cornea. Temperature, second day, 103·2°; third day, 101° to 100·8°; fourth and fifth days, 103·4° to 103°; sixth day, 106·4°; seventh and eighth days, 105° to 105·2°.

Lesions.—General hyperæmia; minute thromboses and moderate œdema, markedly involving basie ganglia and cerebellum, and most pronounced on the left side; thrombi filled both lateral and both inferior petrosal sinuses, and extended into right jugular vein, and were decolorized only near the torcular Herophili.

CASE CXIII. *Symptoms.*—Delirium; normal pupils and respiration; temperature, 101·4°; pulse, 114. Later, great hypersensitiveness and irritability. The delirium continued, though

it did not prevent rational reply to questions; temperature rose to 103·2° on the fifth day, and afterward fell very gradually to 100°; on the fourteenth day it was 103·4°; and on the fifteenth, five hours ante mortem, it was 103·8°, and one hour post mortem it was 104·2°.

Lesions.—Cortical hæmorrhage over both hemispheres and in largest quantity over parieto-occipital junctions; some subarachnoid serous effusion in left frontal region; general hyperæmia with punctate hæmorrhages, most marked on the left side.

CASE CXIV. *Symptoms.*—Primary unconsciousness; on admission, forty-eight hours later, muttering stupor; rigidity of left arm; incomplete right hemiplegia, more marked in upper extremities; pulse, 60; temperature, 101°; third day, increased rigidity of left arm; complete hemiplegia; profound coma; pulse, 128; temperature, 105°. Trephination was followed by increased freedom of movement and by some power of articulation. Death on the fourth day.

Lesions.—Moderate subarachnoid serous effusion over anterior two thirds of right hemisphere; laceration of left temporo-sphenoidal lobe, excavating and destroying its whole structure; cortical hæmorrhage extending around the circle of Willis and upward upon the occipital lobe, and in patches upon the frontal and parietal lobes.

CASE CXV. *Symptoms.*—No external evidence of injury; coma; stertor; rigidity of right side; pulse, 120; temperature, 100°. Death on third day; temperature, 103·2°.

Lesions.—Large subarachnoid serous effusion; recent clot in substance of left cerebellum. An old laceration existed upon antero-superior surface of left occipital lobe and another upon its inferior surface.

CASE CXVI. *Symptoms.*—Consciousness lost and partially restored before admission, twenty-four hours later; mental condition rational, but comprehension slow; slight dilatation of left pupil. Temperature, 99°, followed by some left paresis and by some dysphagia referred to the left side of the throat. The patient from the time of injury often fell out of bed, always on the right side. Subsequently transient facial paralysis occurred; amount of paresis and of dilatation of left pupil varied from day to day; mental condition deteriorated. Temperature for ten days was 99°+; later, 100°+ to 101°; pulse and respiration nearly normal. Trephination on the fifteenth day discovered a small subcortical cavity in the right leg area containing less than a drachm of yellowish fluid, afterward found to contain leucocytes. The temperature was 99°+ till eleventh day after operation, when it rose to 104°; next day, 101° to 104°. Death from asthenia on the twenty-eighth day after admission.

Lesions.—Large subarachnoid serous effusion compressing frontal lobes; general hyperæmia with minute coagula. The brain substance around the small subcortical cavity opened during life was softened and contained punctate extravasations.

CASE CXVII. *Symptoms.*—Unconsciousness, which still continued upon admission on the second day; slight dilatation of the pupils; complete left hemiplegia and hemianæsthesia; slight left facial paralysis. Temperature, 106°; pulse, 140; respiration, 30; general convulsions beginning soon after admission, and frequently repeated; initial symptom in mouth and lower face. Trephination same day by house surgeon with negative result. Temperature two hours later, 107·4°. Death in a convulsion five hours after operation. Temperature, forty-five minutes post mortem, 109·4°.

Lesions.—General hyperæmia of the brain and membranes; tumor of the size of a pea resting in a small cavity in the left frontal lobe formed by disintegration of surrounding brain tissue.

CASE CXVIII. *Symptoms.*—Condition alcoholic and habit epileptic; fell in an epileptic convulsion; large hæmatoma over

left frontal and parietal region; three convulsions within first six hours, the last followed by partial paralysis of left lower face. The temperature on the first day was 101.8° , 102.8° , 100° ; second to sixth days inclusive, 100.6° to $102^{\circ}+$; seventh to ninth day, normal; and then for ten days subnormal during the greater part of each twenty-four hours. On the thirteenth day a severe chill was followed by temporary rise of temperature to $101^{\circ}+$; and on the nineteenth day a slighter chill by an elevation of temperature, which progressively increased till death, on the twenty-first day. Until the occurrence of the second chill there were few general symptoms; some remaining paresis and anæsthesia of the right face, more or less mental aberration, and some delusions. After the second chill strength diminished, the mental condition became sluggish, the respiration rapid, and temperature rose to 105.5° .

Lesions.—Subcortical laceration and excavation of left prefrontal lobe, with a prolongation backward to a point opposite to the middle of the corpus striatum; no hæmorrhages; large subarachnoid serous effusion and opacity of the arachnoid over the whole vertex; general hyperæmia and œdema.

CASE CXIX. *Symptoms.*—Consciousness retained; wound in right parietal region; condition alcoholic; heavy sleep during the first night after admission; afterward constant restlessness; some pain in the back of the head; vomiting of everything taken into the stomach; temperature on admission, 102.6° ; second day, 105° ; and at time of death, which occurred somewhat suddenly at the end of the third day, 103.8° ; pulse moderately accelerated, varying from 120 to 88; pupils and respiration normal.

Lesions.—Subarachnoid purulent effusion over both frontal lobes, mainly on the left side, with some general œdema of the pia; scanty fibrinous exudation at the base; and fibrinous patches on inner surface of the dura at the convexity.

CASE CXX. *Symptoms.*—Absolute unconsciousness till death, an hour and a half after reception of the injury; small wound behind the right ear; dilatation and immobility of both pupils; respiration on admission, 42; an hour later, 21; ceased at death rather suddenly; no cyanosis; pulse feeble and soon became imperceptible; temperature on admission, 98.6° ; an hour later, 98.2° .

Lesions.—Probably caused by *contrecoup*, force having been transmitted through the feet and lower extremities; fractures of both tarsi, comminution of both calcæ and right astragalus, fracture of left leg, and contusion of soles of both feet; pial hæmorrhage to extent of several ounces of fluid blood, mainly at the vertex and in larger part on the left side, extending into median fissure, and which had broken through into the arachnoid cavity; also in considerable quantity upon the inferior surface of the cerebellum, about the median line, and covering the pons; no lacerations; excessive general hyperæmia, most strongly marked on the left side and in the pons, optic thalami, and corpora striata, in the order named; thrombosis of minute vessels generally, but most pronounced in the optic thalami and pons; œdema of the pons.

CASE CXXI. *Symptoms.*—Primary unconsciousness; and on admission mind confused and speech disconnected; four general convulsions from twelve to twenty-four hours afterward; no control of urine or fæces; second day, semi-consciousness; muscular rigidity in back of the neck and extremities; some irritability; fourth day, mental condition rational, but no remembrance of the manner in which the injury had been received; during the next ten days the urine, but not the fæces, remained uncontrolled; there was noticeable weakness of the muscles of the trunk, inability to rise or sit up in bed without assistance, dementia and loss of memory, primary union of the wound, and nearly normal pulse and respiration. On the fif-

teenth day there was somnolence and increase in temperature and infrequency of the pulse and respiration; stupor deepened, and on the seventeenth day unconsciousness was complete. Death occurred in eighteen days. Temperature on admission, 99.4° ; fourth day, 99° ; till the end of second week, 99° to $100^{\circ}+$; on the seventeenth day, 102.7° to 103.8° ; on the eighteenth day, 105.4° . Pulse on admission, 96; normal till fifteenth day; later, 160. Respiration on admission, 26.

Lesions.—Hæmatoma over right parietal eminence; thrombus in superior longitudinal sinus; great fullness of meningeal veins over the vertex; convolutions flattened; frontal lobes relatively small, parietal lobes bulging as though from distention; general cerebral hyperæmia and œdema without punctate extravasations and with few minute thrombi; substance of cerebellum nearly normal. By compressing posterior portion of the cerebrum and making vertical sections anteriorly, serous fluid exuded in great quantity; little serum in the ventricles. A clot about the size of a large pea and of elliptical form occupied the exact center of the anterior third of the left optic thalamus. There were no lacerations, hæmorrhages, or subarachnoid effusions, and upon microscopical examination no inflammatory changes.

CASE CXXII. *Symptoms.*—Walking case; unconsciousness supervened some hours after injury, and continued till death on the third day; wounds in occipital and both parietal regions; slight dilatation of left pupil. Temperature, 103.6° to 106.6° .

Lesions.—Large pial hæmorrhage compressing left frontoparietal region; excessive general hyperæmia with numerous minute thromboses; subcortical laceration just external to anterior part of left corpus striatum, an inch by half an inch in its diameters.

CASE CXXIII. *Symptoms.*—None recognized till admission three days after reception of the injury; partial loss of consciousness; complete right hemiplegia and hemianæsthesia including trunk; complete aphonia; slight dilatation of pupils; bilateral convulsive movements of face and neck with the eyes turned to the right, repeated every five minutes; respiration shallow and hurried; pulse rapid, feeble, and irregular. Temperature, 101° to 104° ; radial pulsation fuller and stronger on the left side than on the right. Trephination disclosed arachnoid clot. Death occurred before operation was completed.

Lesions.—Pial hæmorrhage with clot covering both frontal and both parietal lobes; right lateral ventricle filled with hæmorrhagic serous effusion; general hyperæmia.

CASE CXXIV. *Symptoms.*—Walking case; unconsciousness supervened some hours after apparently trivial injury; no discoverable external lesion; dilatation of pupils; second day, partial restoration of consciousness; fourth day, delusions; ninth day, stupor; eleventh day, complete unconsciousness. Death at end of twelfth day. Temperature on the first day, 102.4° ; afterward, 101° to 99° ; final observation, 100.8° ; pulse, 76, gradually increasing in frequency; respiration, 24, 20, 28.

Lesions.—Thin layer of pial hæmorrhage which covered the opposing surfaces of the superior median fissure, and spread over left occipital and parietal lobes to margin of the temporal lobe; some blood, also pial, in the left middle fossa; general hyperæmia and moderate œdema.

CASE CXXV. *Symptoms.*—Unconsciousness which soon after admission was replaced by delirium; no external injury; loss of urinary control; delirium constant, of a quiet sort by day and violent by night till the seventh day, when for some hours before death it was muttering, or typhoid, in character; mental condition stupid from the beginning; patient was at no time able to give any account of himself, to respond to a question, or to show any appreciation of his surroundings. Death from asthenia on the seventh day. Temperature on admission,

96°; rose progressively in three days to 103·2°; on the fourth day was 101·8°; on the fifth day, 103°; on the sixth day, 104·6°; and on the seventh day, 101·2° to 107·2°; post mortem, 107·8°. The pulse did not exceed 100 till late in the week.

Lesions.—Small laceration in the substance of the posterior part of the left frontal lobe; laceration of under part of the corpus callosum in its anterior third, and of left lateral edge of the fornix anteriorly; small hæmorrhage in left lateral ventricle derived from the laceration of the fornix; pial hæmorrhage over posterior part of right occipital lobe, upon its border, beneath tentorium, and upon the posterior border of the cerebellum; blood fluid and moderate in amount; moderate general hyperæmia with minute thromboses.

CASE CXXVI. *Symptoms.*—Walking case; unconsciousness after some hours' interval; stertor; loss of urinary control; vomiting. Temperature, 101·8°; rose progressively to 107·8°; pulse, 70 to 162; respiration, 24 to 46. Death in eleven hours.

Lesions.—Laceration of superior surface of right parietal lobe; cortical hæmorrhage covering whole right hemisphere; general hyperæmia.

CASE CXXVII. *Symptoms.*—Unconsciousness, which soon became profound; normal pupils; pulse in a few moments rose from 90 to 140; right side of body and right extremities rigid; bilateral convulsive movements; right radial pulse fuller and stronger than the left. Death in eight hours and a half. Temperature on admission, 97°; in three hours, 101°; in six hours, 102·2°; pulse, 90 to 140 to 136; respiration, 20, 18, 21; and just before death, 12 and then 7 in the minute, very full and deep, with cyanosis.

Lesions.—Small contusion of scalp in left middle parietal region discovered only after post-mortem incision; thin pial hæmorrhage, mostly fluid, covered whole superior and external surfaces of both hemispheres as far forward as the middle of the frontal lobes, extended in larger quantity over both surfaces and both borders of the cerebellum, and spread over the pons and medulla; pia mater intensely hyperæmic; small contusion on inner border of right temporo-sphenoidal lobe, and a larger one at left parieto-occipital junction; brain substance generally excessively hyperæmic and œdematous, with many small areas of local contusion filled with small hæmorrhages as large as a robin shot.

The essential lesion was laceration of the basic ganglia. The right corpus striatum was entirely disintegrated and destroyed; its ventricular surface only remained, as a ragged membranous capsule, of which much had altogether disappeared. The laceration extended antero-laterally into the substance of the right frontal and parietal lobes; it was continued posteriorly through the tænia semicircularis into the anterior part of the optic thalamus. The ventricular surface of the left corpus striatum was contused and marked by small linear lacerations. The fornix and under surface of the corpus callosum were softened and disintegrated. Fluid blood partially filled both lateral ventricles, and in the left had broken through the posterior cornu into the occipital lobe in considerable quantity.

CASE CXXVIII. *Symptoms.*—Immediate unconsciousness with some response to external irritations, which continued till final coma; continued dilatation of both pupils, which were sensitive; temporary rigidity of left side; right hemiplegia and hemianæsthesia, and right facial paralysis; restlessness, which was confined to the left side; retention of urine; coma and stertor for five hours before death, which occurred in fifty-three hours. Six hours before death the left hand became icy cold and the left arm and foot cool, while other parts of the body retained a normal surface temperature. At this time the rectal tempera-

ture was 102·6°; the left axillary, 100·4°; and the right axillary, 103·2°. In fifteen minutes the temperature in the left axilla rose to 101·4°, and in thirty minutes to 102·8°, while the rectal and right axillary temperatures remained stationary. The axillary temperatures were at other times symmetrical. Temperature on admission was 98·5°, and in two hours, 102·2°; in eleven hours it receded to 101°, in the next twelve hours rose to 105°, on the second day receded to 100·4°, and a few moments before death was 106°; one hour post mortem, 106·2°. The pulse gradually increased in frequency from 110 to 158. The respiration was never below 30, and was finally 56 in the minute.

Lesions.—Contused wound of the scalp over right parietal eminence; slight pial hæmorrhage over inferior surface of cerebellum and posterior left occipital border; copious subarachnoid effusion and arachnoid opacity in posterior parietal regions most marked on the left side; small hæmorrhagic serous effusion in left lateral ventricle; limited contusion and slight laceration in the substance of the fornix posteriorly; excessive general hyperæmia and œdema, with a few minute thrombi in all parts of the brain.

CASE CXXIX. *Symptoms.*—The patient walked home after a fall of ten feet, had a single convulsion a few hours later, and was stupid or dazed for five days afterward; he then became violently delirious, and was admitted to the hospital. At that time, no visible external injury; pupils moderately dilated; radial pulsations bilaterally symmetrical; posterior cervical muscular rigidity, and loss of urinary control. On the following (seventh) day pupils contracted and muscular rigidity increased; one convulsion after admission; mental condition marked by alternations of stupor, with wild delirium. No change till the eleventh day, when the patient became quieter, and could answer a limited number of questions intelligently. On the fifteenth day the pupils became normal, muscular rigidity diminished, and urinary control was temporarily regained. From the sixteenth day unconsciousness was complete. On the seventeenth day the pupils were again contracted, the respiration was stertorous, and the face cyanotic; the lungs became œdematous, and death occurred on the morning of the nineteenth day. The temperature on admission was 102°, and varied from 99° to 101°+, with occasional elevations to 102°+ till the last thirty-six hours, when it was constant at 105·6°; and half an hour post mortem was 106°. The pulse on admission was 132, and afterward was usually from 96 to 112. The respiration was moderately increased in frequency. Both pulse and respiration were finally greatly accelerated.

Lesions.—Cortical hæmorrhage, compressing outer and anterior aspect of right frontal lobe, and filling right anterior fossa. This was derived from a laceration of the inferior surface of the right frontal lobe, mainly subcortical, which excavated its inferior and outer portion; cavity as large as a pigeon's egg and lined by a thin, chocolate-colored and pulaceous substance. Small linear laceration upon inner border of left frontal lobe and slight contusion of anterior portion of right temporo-sphenoidal lobe, both upon inferior surface. Opacity of arachnoid membrane; no subarachnoid serous effusion, and only very moderate hyperæmia of the brain substance.

CASE CXXX. *Symptoms.*—Primary and permanent unconsciousness; restlessness; general muscular rigidity; stertor; irregular pupils. Temperature on admission, 100°, and at death 99·8°; pulse varied from 108 to 160; respiration, 32 to 58. Death in an hour and a half.

Lesions.—No fracture or lacerations; large general subarachnoid and ventricular serous effusion; general hyperæmia and excessive œdema.

(To be continued.)

INTERESTING CASES FROM GENERAL PRACTICE ILLUSTRATING SPECIAL POINTS OF TREATMENT.*

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IN this age of realism, when the profession are seeking to refer diseases to special causes, and the revelations of the microscope are disclosing to us a vast unseen world of vegetable and animal parasitic organisms, which, by their number and association, are making it more and more difficult to assign to any specific one its rôle of causation, and when chemistry is constantly pointing out new ptomaines and leucomaines whose action in the production of physical derangement and disease is undetermined, while atmospheric and climatic variations, hereditary influences, and individual peculiarities and environment are being investigated, it does not seem amiss that we should carefully study and report the cases which come under our observation as general practitioners, noting carefully such facts in the family and individual history as seem most important in the light of the increased knowledge of this century, in the hope that we may be able to each add our humble mite to the fund of knowledge which shall in the future make this world less full of trouble to man who is born of a woman and whose days are few. Although parasites, ptomaines, leucomaines, and defective chemical action have been shown to be responsible for a large number of diseases and affections to which the human family is liable, it still remains to study the individual factor which may be more or less modified by premature or senile instability and decay, functional insufficiency and derangement of particular organs, defective chemical action, and lack of vital force in the great nerve centers, and to point out that certain affections of the alimentary canal, which were formerly supposed to be caused by the gouty diathesis, are now known to be the result of the formation of ptomaines, due to fermentation caused by slow digestion incident on defective secretion from lowered nerve tone, and which are now cured by the administration of intestinal antiferments, together with such measures as restore nerve tone.

My first group of cases includes five which are especially of interest to the neurologist: One of tumor of the medulla oblongata, one of migraine, one of male hysteria, one of simple neurasthenia, and two of reflex neurasthenia, in which the peripheral irritation was supplied in one case by the eyes and in the other by the genital organs.

The second group includes three: One of gonorrhœal cystitis; one of gonorrhœal proctitis, endometritis, salpingitis, and oophoritis; and a case of obesity with probably fatty heart, accompanied by dilatation and mitral insufficiency, complicated with bronchial catarrh and pulmonary œdema, and illustrating the efficacy of methods looking toward the unloading of the peripheral circulation of the kidneys and intestines, together with a cardiac tonic in relieving an overtaxed weak heart.

I give the history of these cases as they were taken at

the time I saw them, leaving each case to speak for itself and carry its own lesson.

Hysteria in the Male.—A. B., aged thirty-one years; born in Scotland; occupation, a journalist; of neurotic temperament.

Family History.—Grandfather on father's side died of consumption at sixty-three years of age. Grandmother on father's side died of catarrh of the stomach at forty-five years of age. Father living, sixty-two years old; was born when father was fifty-three and mother forty-five years old. Has chronic bronchitis, emphysema, and tuberculosis, bacilli having been found on two examinations during the past year, and commencing cataracts in both eyes; of neurotic temperament, and has undoubtedly a gouty diathesis, having been troubled with eczema, and oxalate of lime having been frequently found in his urine. Has been subject to attacks of asthma since twenty-one years of age; had specific trouble when twenty years of age, followed by secondary and tertiary symptoms. In 1880 and 1881 was worried about family matters and had nervous attacks, accompanied with loss of consciousness, from which he was revived with difficulty. Says the attacks were not epileptic. One uncle died when young. One uncle, now living, is perfectly well, and another uncle, sixty-two years old, was said to have had consumption when young, but went to Australia and recovered.

I was asked to see this patient, as he had a nervous impediment in his speech, rendering his mode of conversation quite different from the usual form (probably hysterical stuttering). His father wrote me as follows: "From what he tells me the attacks must be epileptic, and the doctors who have seen him seem to have come to my conclusion, that they are caused by some intestinal irritation. As in his present condition he is unfit to be out of doors, I told him I would ask you to call and see him at his house."

I accordingly visited the patient, and obtained the following history: At five years of age the patient had typhoid fever; at seven, scarlet fever; he suffered much from pain in the back until twelve years of age; he was in good health, except that he had dyspepsia. During the preceding summer he was very well. He rode the bicycle to excess; at times he rode until he fell off the wheel exhausted; he also climbed cliffs. On October 2, 1891, he walked two miles, feeling unusually well; went to his office, had feelings of apprehension and heart pain, took a seat in a chair, and then, he says, all was blank. The next thing he remembers was that he was holding on to a doorpost and looking into the adjoining office. He was led to a chair by the typewriter. His head was clear, but he was unable to speak. He wrote in the dust on his desk the word "doctor." He was laid on the floor, and all movement in the left leg and arm was lost. On the following day he recovered motion in the arm, but the left leg dragged on walking for two weeks. His left leg was very weak afterward, and he seemed to be obliged to make a great exertion to move the leg. He says he has had several such attacks, and that each attack has been followed by spasmodic asthma. In January, 1892, he overexerted himself, became elated, and threw his hat in the air, when he fell down and was unconscious for half an hour. In November, 1892, he had slight attacks, characterized by a feeling of apprehension, and a sensation as though his heart was quivering from side to side like jelly. After these attacks his stomach was distended with gas, and he passed about two quarts of straw-colored urine. At times, when sitting, he gets stiff, his head falls back, his mouth opens and remains rigidly open, as though locked; he is unable to speak, and has a fixed stare. He had two or three such attacks in one day, and then no more for four days. He says he gets over an attack more quickly when he moves about and goes into the open air. He has had

* Read before the New York State Medical Association at its eleventh annual meeting.

attacks at night, and seemed unconscious for an hour or more. While relating these facts to me he remarked that he was going to have an attack, and suddenly his face became red, his limbs stiff and rigid, his pulse rapid and irregular, his pupils dilated, his mouth open, and he gave utterance to a moaning cry. He was apparently unconscious for five minutes, when he recovered consciousness, and was unable to speak or move at first, but finally, when a paper and pencil were placed before him, he wrote on the paper, "To sit up," and "That was a little one." He did not froth at the mouth or bite his tongue, and he was not drowsy, although he stated that he had frothed at the mouth in other attacks and was drowsy. He moved slowly after the attack. My diagnosis was male hysteria, and I prescribed bromide of sodium, in fifteen-grain doses, four times a day.

March 22, 1892.—The patient had an attack last evening at 9 P. M., the day after I saw him, which he says was accompanied by frothing at the mouth and drowsiness.

30th.—He has had no attacks since March 22d, and I now prescribed elixir of valerianate of ammonium, one teaspoonful three times a day; and two tablets of Flint's saline and ferric tonic, three times a day; together with one thirty-second of a grain of biniodide of mercury and five grains of iodide of potassium after meals.

April 6th.—He has had only one attack since last here, or two attacks in two weeks. He says he has never had these attacks when on the street, because he braces up. He states that his brain feels like a ball surrounded by a rind, and the brain wants to work, but the rind remains passive. He has hesitating speech to-day, but on some days his speech remains clear. He has crying spells if he does not exert his self-control. He has spasmodic asthma; he can stop it by pinching his ear. Sometimes, he says, he sleeps well, but at times he wakes and writes verses. Mixed treatment continued, also tonic in the shape of Fellows's hypophosphites.

25th.—He has had no spasms since last visit, but says he has had a desire to have attacks; he has been irritable, and felt as though he wished to strike people. He has hesitating speech still. I prescribed ten drops of tincture of cannabis indica, and fifteen grains of bromide of ammonium, every four hours.

He had no further attacks after this, and I did not see him until May 10, 1893, one year afterward, when he called and stated that he had been well, except during the winter he had an attack after being excited, when he had suffered from pain in the heart and dragging of the left leg for four days. Two weeks ago he had an attack of faintness and gnawing pain in the heart, followed by distention of the stomach with gas and the passing of a large quantity of straw-colored urine. I prescribed mixed treatment, a tonic, and elixir of valerianate of ammonium. In June, 1894, this patient called and said he was suffering from a spasmodic affection of the throat, and while sitting in my office he had an attack which seemed like spasmodic croup. He said he had had an attack of measles followed by bronchitis during the winter, and had since been suffering from general debility. I diagnosed the condition as hysterical, and prescribed elixir of the valerianate of ammonium, in teaspoonful doses, three times a day, and, as a tonic, syrup of hypophosphite of sodium, with tincture of nux vomica and citrate of iron and quinine.

The interesting points in the case seem to me to be:

1. The gouty, neurotic, and specific history of ancestry, with tendency to tuberculosis, asthma, and eczema.
2. The instability of the nerve centers, due partly to faulty nutrition produced by such dyscrasia.
3. The importance in such cases of urging a cessation

of introspection and the adoption of measures looking toward such mental employment and diversion as will favor that end. The use of such means as will increase the control of the higher centers over the lower, and the avoidance of everything tending to mental and physical exhaustion.

4. The recovery under specific treatment, tonics, rest, and nutrition.

5. The question of the bearing of the advanced age of parents on the neurotic history of children given birth to during that period, the father of this patient having been born when his father was fifty-three years old and mother was forty-five years old.

6. The influence of the cerebrum upon the bodily functions, it being probable that just as the cells of the spinal cord supply something which governs the nutrition of the body, so the cells of the cerebrum probably supply something which perhaps has much to do with the proper and harmonious working of the various parts of the human machine, and inferentially the importance of methods of treatment directed to the intellectual faculties.

Simple Neurasthenia.—Miss B., born in the United States, aged thirty-three years, white, occupation a housekeeper, consulted me December 28, 1893. Family history shows that father died of rheumatism at fifty-two years of age. Mother living and well, sixty-seven years old. Grandmother living, aged eighty-nine years.

Patient says she suffered from nervous exhaustion five years ago, after beginning to keep house for her brother, who lost his wife. At the present time she complains that she is weak, has no appetite, suffers from flatulence, nausea, and a gnawing pain after eating. An examination of her urine showed acid reaction; specific gravity, 1.032; no albumin; no sugar. Under the microscope crystals of uric acid were discovered. Physical examination showed anæmic murmur at the base of the heart. I prescribed a diet of milk and limewater and kumyss, and eight drops of tincture of nux vomica before meals and pil. Bland after meals.

January 3, 1894.—Patient states she was unable to retain the kumyss or milk and limewater. She took six bottles of kumyss, all of which were vomited at once. I suggested the trial of peptonized milk in half-tumblerful portions every two hours, alternating with bovine and sherry wine, and oatmeal well boiled, strained, then diluted with milk and boiled again. Nux vomica and pil. Bland continued. Advised sponging with cold water and rubbing with hair mittens every morning to promote the activity of the cutaneous circulation and oxidation, exercise in the open air daily, short of fatigue, and mental diversion.

17th.—Patient was unable to take the peptonized milk, but has been able to take the oatmeal prepared as above, following it with a third of the powder in one of Fairchild's peptonizing tubes. She has also retained some beef and a dozen raw oysters daily, and has continued taking bovine in portions of two teaspoonfuls three times a day.

31st.—Diet of oatmeal, milk, and bovine continued, but for three days past has taken chops, baked potatoes, and eggs, following each meal with a small dose of pepsin, bowels being regulated with a preparation of cascara, and tincture of nux vomica and Bland pills continued, and from this time on the patient made a complete recovery.

The points of interest in this case are:

1. The recognition of the anæmia and lowered nerve

tone and the successful treatment by nux vomica, iron, rest, and nutrition.

2. The idiosyncrasy in this case, allowing of the digestion of oatmeal gruel prepared with milk and followed by a peptonizing powder, when milk and limewater, kumyss, and peptonized milk were rejected.

Tumor of the Medulla Oblongata (probably Glioma).—M. M., female, white, married, aged twenty-five years. Family history: Father living and in good health, sixty-one years of age; has followed the sea for thirty years. Mother died at forty-two years of age from enlargement of the liver. Four brothers and two sisters living and well.

Personal History.—Has been married seven years; has had four children; no miscarriages. First child was born eleven months after marriage, second child nineteen months after the first, third child eighteen months after the second, fourth child seventeen months after the third. No history of syphilis in parents, husband, or self. Has never been ill before, except with diseases incident to childhood. Two of her children died in September, 1893, from diphtheria and measles, in consequence of which she suffered much from mental depression. In November, 1893, she began to suffer from pains in the back of the neck, and at the same time had heavy spells of coughing and sneezing, which have continued up to this date. Has had nystagmus in both eyes, which has now ceased. She also noticed difficulty in swallowing and fluttering of the eyes. About four weeks ago she began to feel a weakness in the knees, as though she was about to double up. She was unable to stand for any length of time or maintain her balance while standing with the eyes shut. She also has tachycardia, the heart pulsations numbering 140. She walks with a staggering gait and is constantly in fear of falling. She is not dizzy, but weak; dislikes to raise her hands to her head, prefers to let them hang down by her side; has creeping feeling under arms and on the sides of the body, and sore feeling in the ends of her fingers when she touches anything.

March 16, 1894.—Dr. Frederick Peterson saw the patient and thought she had a tumor of the vermis of the cerebellum pressing on the medulla and affecting the glosso-pharyngeal, pneumogastric, and other nerves.

April 10th.—Dr. M. Allen Starr was of the opinion that this patient had a tumor of the medulla, causing all her symptoms, probably a glioma. He found anæsthesia of the pharynx and larynx, with choked discs and commencing amaurosis. Suggested that the patient remain quietly at home, use morphine in doses of an eighth of a grain for headache, and atropine, a hundred and twentieth of a grain, and strychnine, a fortieth of a grain, as a heart tonic.

May 22d.—Patient's condition unchanged. The points of interest in this case are the diagnostic value of such symptoms as pain in the back of the neck, nystagmus, coughing, sneezing, difficulty in swallowing, anæsthesia of the pharynx and larynx, choked disc, general paræsthesia and anæsthesia, staggering gait, as indicating involvement of the glosso-pharyngeal, pneumogastric, and other nerves, and pointing to the medulla as the seat of morbid growth.

Migraine, and its Palliative Treatment by Cannabis Indica, Bromides, and Arsenic.—M. S., female, white, born in Germany, aged forty-one years, married; temperament neurotic.

Family History.—Father died at sixty-nine years of age. Cause of death, as given by the patient, asthma. Mother died at the age of fifty-two years. Cause of her death, "change of life." One brother and one sister, fifty and forty-five years of age, respectively, living and well.

Personal History.—Patient states that she menstruates regularly once a month, but generally suffers from headache before or after; that she has suffered from headaches for the past ten years; that she now has them twice a week, and that they came on originally after sweeping, with the windows open, on a wet day. She thinks she suffers more from them in the winter than in the summer. Eyes and nose ache and run water when she has a headache, and she also suffers from nausea. Precursory symptoms are coldness, dryness, and itching sensation of the nose. She has had one child, now twenty-three years of age; no miscarriages, and has never been seriously ill. Examination of the uterus shows tenderness back of the cervix and that the womb is bound down by old adhesions the result of peri-uterine inflammation. Examination of the urine shows nothing abnormal except a deposit of triple phosphates.

Treatment was begun January 6, 1892, by the administration of Herring's extract of cannabis indica, a sixth of a grain three times a day, before meals, with directions to increase the dose weekly by a sixth of a grain until three sixths were taken, or some unfavorable symptoms were produced by its action, such as light-headedness, drowsiness, or a dreamy state, and a fiftieth of a grain of arsenious acid after meals. Her eyes were examined by an oculist, and some defects found, for which proper glasses were prescribed. The above-mentioned measures constituted the interparoxysmal treatment, and during the attacks and in the endeavor to ward them off antipyrine and caffeine were used, but unsuccessfully for the most part, it being necessary to use a hypodermic of morphine to control the attacks, which seemed to me to be justified in this case, as long as the attacks were not very frequent and no tendency to the morphine habit was developed. A hypodermic injection of crystallized hyoscyamine, a fiftieth of a grain, has been advised to control the attacks, but this I have not used. Under the treatment the patient improved so that on February 6, 1892, a month after commencement of treatment, the interval between the attacks had been prolonged to two weeks. On March 7, 1892, the interval between the attacks of headache had been lengthened to three weeks, and from this time on, for the next two years, the attacks were so infrequent that I was not consulted. On March 19, 1894, however, the patient called and said she was again suffering from the headaches, which came on weekly. Extract of cannabis indica was again prescribed, with a fiftieth of a grain of arsenious acid, three times a day; three five-grain Bland pills after meals and twenty grains of sodium bromide at 4 p. m. and at bedtime. On May 16, 1894, the patient had had no return of the headache for four weeks. She is now taking two pills of a sixth of a grain of extract of cannabis indica three times a day, which she has been advised to continue for many months, and a fiftieth of a grain of arsenious acid, with iron, the bromide having been discontinued.

The points of interest are:

1. The difficulty of ascertaining the exact cause of the attacks of migraine, which might furnish clear indications for the treatment.
2. The value of the palliative treatment by means of cannabis indica, arsenic, iron, and bromides.
3. The importance of the consideration of uric acid as a factor in the causation of migraine, as suggested by the investigation and results brought forward by Dr. Alexander Haig, of London, who on a diet of milk, fresh fruit, and vegetables diminished the frequency of headaches in his own person from an average of one in a week to an interval of eighteen months.

Reflex Neurasthenia due to Stricture of the Urethra, of Large Caliber, an Eighth of an Inch from the Meatus Urinarius. Free Division of the Stricture followed by Complete Recovery.—E. T. R., male, white, aged thirty-two years, born in the United States, occupation a fisherman. Weight, a hundred and fifty-five pounds. Consulted me December 29, 1892.

Family History.—Father, aged sixty years, living and in good health; mother, aged sixty-two years, living and well. Has two brothers, who are also in good health. Father has suffered from rheumatism, and one sister and brother of his mother died from phthisis.

Personal History.—No history of gout or rheumatism. Had chills and fever sixteen years ago. Had influenza three or four years ago. No sequela. Has been married six or seven years; has two children, girls, six and four years of age. Wife is twenty-four years old and in good health. He says he has never had any venereal disease whatever. Masturbated when young, but not very much. Some years ago he used to notice that when he wished to urinate he could not, and, as he expresses it, "would put up." In October, 1892, he began to feel a slight irritation, something like a sensation of heat, in the head of the penis, and thinks he had a slight gleet discharge at that time. He also noticed that the urethra did not empty itself completely. He says he tore the frenum when young in trying to enter a woman, but was unable to effect an entrance. Has had an uncomfortable feeling in the rectum while sitting. About November 15, 1892, he was scarcely able to walk at night, owing to weakness of the legs below the knees. He also had a feeling of weakness in the forearms, hands, and fingers, and slight pain in one foot. Was also troubled in reading; in the daytime he had to hold the newspaper at a greater distance than usual from the eyes, but at night he was unable to read at all. He says he now reads as well as ever. He had at the same time what he calls spasms, which seemed to go from his head to the head of his penis. These came on, he says, while dozing. Complains that his brain is muddled after sexual intercourse; that he has queer feelings in his hips, which he describes as pain, weight, and bearing down. Urine examined: specific gravity, 1.030; no sugar; no albumin. Phosphates found under the microscope. An examination of his urethra showed stricture admitting No. 17 bulb, American scale, an eighth of an inch from the meatus urinarius. The stricture was incised freely so as to admit No. 22 bulb, American scale.

January 3, 1893.—Passed No. 22 short sound through the meatus, and No. 15 sound into the bladder. Patient went home, having been instructed to pass No. 22 or No. 18 conical short sound through the meatus every fourth day, for a week, and once a week thereafter for a month.

March 12th.—Patient writes me from his home that he has gained twenty-five pounds since the operation, and that all his unpleasant symptoms have disappeared.

It seems to me of interest to note in this case the annoying train of nervous symptoms produced by a slight stricture of the meatus urinarius, and their complete and permanent removal by free division of the stricture and subsequent dilatation during the process of healing.

Reflex Neurasthenia due to Neurotic Temperament, Struma, Anæmia, and Indoor Confinement, complicated with Myopia and Weakening of the Internal Recti and Right Superior Rectus Muscles of the Eyes.—P. W., aged seventeen years, white; born in New York.

Family History.—Father living, aged thirty-eight years; neurotic temperament and strumous. Mother living, aged thirty-seven years; neurotic temperament; gouty; given to in-

tropection and general apprehension that she was suffering from cancer.

Personal History.—Patient has never had rheumatic fever, has always been very nervous, but has never had any prolonged illness. During his early years he suffered from enlargement of the tonsils and their frequent inflammation; also from balanitis, for which he was circumcised. In 1887 he suffered from a number of nervous symptoms which seemed to me at the time to be due to debility or general malnutrition, such as a sensation of trickling down the chest, numb feeling in one half of right hand, chills in the head, as he expressed it, and a feeling as though tipsy when walking. Improvement followed tonic treatment. In 1891, during the winter, he was found to be anæmic, murmurs being heard at the base of the heart and root of the neck. At the same time he had frequent nocturnal emissions. Improved under iron and giving up attendance at school. Returning to his studies too soon, without my approval, in the spring of 1891, he began to suffer from vertigo. He was somewhat better on going to the country during the summer of 1891, but still had vertigo at times. In the fall of 1891, on his return to the city, he was compelled to go to school under threats of being deprived of pocket money and theaters; also disinheritor if he did not go. He then began to complain of vertigo, a feeling as though the floor was like dough, and as though his foot was entering a hole in the ground. The bed seemed to be moving, chairs and doors tottering, earth moving away from his feet. Cold, clammy feet and hands, rush of blood to the head, feeling of rising in the throat and pain, hot and cold flushes in different parts of the body, and a feeling as though he was going to faint on the street; a sensation as though he was going to explode when sitting in a chair unless he got up. At this juncture Dr. Janeway saw the case with me, and advised leaving off study, outdoor life, and an examination of the eyes.

February 24, 1892.—Dr. C. S. Bull made an examination of his eyes and found the following condition:

"The right eye is slightly myopic, with slightly subnormal vision. The left eye is more highly myopic, but the vision when the error is corrected is perfectly normal. The muscular condition of the eyes is far from satisfactory. There is a loss of power in the right superior rectus muscle, and in both internal recti muscles. These anomalies are not proper subjects for operation, but may be corrected and improved by proper prismatic glasses. I have given him the formula for proper glasses—one pair for reading and writing and one pair for the street and places of amusement. While I think there is no reason for stopping his studies, they should be so directed and limited that he should not need to use his eyes more than half an hour at a time. In choosing a business or profession, care should be taken to avoid such occupation as would keep him confined to his desk for hours."

February 6, 1893.—Patient better since eyes were attended to, but still gets very tired on exertion, and totters as he expresses it; has only walked in sight of the house where he lives for a week, as he feels weak and gets shortness of breath and becomes dizzy; symptoms of last year are not present; can not ride horseback or go out in carriage alone, as he seems to be afraid to do so. Examination of urine showed oxalate of lime.

May 7, 1894.—Patient has lived in the country on Long Island, N. Y., since June, 1893, one year, and is better in all respects, but I still find his nervous system in a very unstable condition, and still advise a life in the open air in the country and freedom from all mental and physical strain.

The points of interest in this case are:

1. The general malnutrition and instability of the nerv-

ous system, due probably to strong hereditary tendency, strumous and gouty dyscrasia, and the evil effects, in such cases, following close application of the mental faculties and indoor confinement.

2. The ocular defects, probably due to malnutrition, and the reaction of such defects upon the oversensitive nerve centers, as shown in this case by a great variety of morbid sensations, probably due to instability of the vasomotor system of nerves.

3. The relief of the unpleasant nervous symptoms in this case by the wearing of proper glasses, without cutting the eye muscles, and thus avoiding another source of nervous irritation which I think the frequent operation sometimes does produce.

Gonorrhœal Cystitis; Treatment by Washing out the Bladder with Solutions of Boric Acid and Borax in Glycerin and Warm Water, and the Administration of Diuretics, Antiseptics, Diluents, and Tonics, followed by Cure.—C. A., colored, aged thirty-four years; born in Nashville, Tenn.

Family History.—Father died of phthisis at about forty years of age, and two brothers suffer from lung trouble.

Personal History.—Has had gonorrhœa two or three times, it having lasted in one instance for three years; has had stricture of the urethra, for which internal urethrotomy was performed. Had primary syphilis in 1880, and has had outbreaks of specific symptoms up to the present time, for which he has been treated intermittently; had intermittent fever at ten years of age, pneumonia in 1876, and pleurisy in 1879. Patient has been under my care since 1888 up to the present, during which period he has received considerable treatment on different occasions for rheumatism, syphilis, pleurisy, and minor ailments. On December 23, 1893, he called on me and said that he wished to be examined to ascertain if he was suffering from stricture of the urethra, as he had had some discharge from the urethra and had been using various injections without favorable result. Thinking he might be suffering from discharge due to congestion of a damaged urethra behind a stricture, and he giving no history of a fresh gonorrhœal attack, I passed a No. 15 bulbous bougie into the bladder and met with no obstruction. My patient seemed satisfied and left my office. On December 28th, however, he called again, and now complained of great frequency in passing water, accompanied with tenesmus and pain. I advised that he should go to bed, apply hot poultices over the hypogastrium, take thirty grains of citrate of potassium, well diluted with water, three times a day, and, to allay the vesical irritability, use a suppository of one grain of extract of hyoscyamus and one third of a grain of aqueous extract of opium every three hours. An examination of his urine showed a large quantity of mucus and pus.

December 29th, 30th, and 31st.—Same treatment continued, with rest in bed, but the distressing symptoms not having abated, and the urine being still loaded with mucus and pus, on January 1, 2, 3, and 4, 1894, I washed out his bladder with a solution of boric acid in warm water, a teaspoonful to the pint, by means of a glass funnel with a rubber tube attached, connecting with a flexible No. 7 rubber catheter, not more than four ounces being allowed to run into the bladder at each application, the funnel being held at a height of not more than two feet above the fundus of the bladder.

January 17th.—Bladder symptoms somewhat improved under previous treatment, but still has frequent calls to pass water, and the urine contains mucus and pus. Patient was now allowed to leave his bed and go about, and, on calling at my office, after passing his urine, I passed a catheter to ascer-

tain whether there was any residual urine, and found none. A rectal examination showed the prostate to be swollen and tender. I then washed out the bladder with a solution of borax in warm water, two teaspoonfuls to four ounces, and ordered him to take an ounce of infusion of buchu with five grains of benzoate of sodium three times a day as a diuretic and antifermentative; to drink freely a tea made of green parsley as a diluent, and ten drops of the muriated tincture of iron three times a day as a tonic. This treatment was continued, washing out the bladder twice a week with the last-mentioned solution, to which a little glycerin was added, until January 27th, when the symptoms yielded, urine clearing up, and the patient recovered completely.

The points of interest in this case are:

1. The probability of this patient having contracted a gonorrhœa which he had aggravated by irritant injections when he first consulted me, and the importance of bearing such fact in mind on being consulted in such cases before passing instruments into the bladder which might carry infection, patient having misled me when he called by asking to be examined for stricture.

2. The importance of examining the discharge in such a case as to the presence of the gonococcus.

3. The curative effect of washing the bladder not too frequently with borax and warm water, twice or three times a week seeming to be sufficient, so as to avoid too much mechanical irritation, combined with the diuretic and antifermentative effects of buchu and benzoate of sodium, the diluent qualities of parsley tea, and the tonic properties of the muriated tincture of iron.

4. In another case I should try the effects of the internal administration of methylene blue in capsules, beginning with a dose of half a grain three times a day, as an antiferment, and increasing if necessary to eight grains.

Gonorrhœal Proctitis, Endometritis, Salpingitis, and Oophoritis.—L. K., white, aged twenty-four years, consulted me January 8, 1892, complaining of uneasy feelings and pain and discharge of mucus from the rectum. I was led to suspect the existence of gonorrhœa, from the fact that her husband was at this time under my treatment suffering from gonorrhœa, who stated that he had recently returned from a railroad trip, and while away had intercourse with a suspicious party, and that on his return home, after seeing his wife, he had noticed a discharge. However, the patient made no complaint of ardor urinæ, and a careful examination at this time failed to show any discharge from the urethra, vagina, or cervix uteri. An examination of the anus showed it to be inflamed and fissured, and wishing to avoid unpleasant family complications, I endeavored to make light of the matter and touched the fissures with a solid stick of nitrate of silver, which seemed to give some relief. As the examinations were very painful and disagreeable to the patient she did not call on me again until January 28th, when she still complained of discharge of mucus from the rectum, for which I now prescribed rectal injections of borax and warm water and suppositories of tannin, five grains each. Another careful examination showed no discharge from the urethra, vagina, or cervix uteri. I heard nothing further from the patient until February 14, 1892 (seventeen days after her visit to my office and thirty-seven days from the date of the commencement of her illness), when I was asked to see her and found her still discharging mucus from the rectum. I also now found the cervix uteri red, inflamed, and eroded, and a large plug of yellow mucus hanging from the external os. There was great

tenderness on pressure in the posterior *cul-de-sac* of the vagina, and examination by the rectum revealed a small movable body about the size of an English walnut posterior to the cervix uteri, a swollen and prolapsed ovary, and to the left, and somewhat posterior to the body of the womb, a movable mass which felt like a collection of pus and by which the body of the uterus had been pushed over toward the right. A diagnosis was now made of gonorrhœal endometritis, salpingitis, and ovaritis, and rest in bed advised, with application every other day of tampons of cotton to the cervix uteri, saturated with a mixture of ichthyol and glycerin, two drachms to four ounces, iron, and abundance of nourishing food. Tampons were used every other day until March 4th, when the menses came on and the vagina was cleansed every other day with warm carbolated injections. On March 12th, the period having ceased, the tampons were resumed, and continued at longer intervals until April 16th, when, there being no discharge evident from cervix, urethra, vagina, or rectum, patient was discharged, apparently cured, and up to date of this writing there has been no further complaint.

The points of interest in this case are:

1. The gonorrhœa of the rectum which attracted attention when there were no symptoms of gonorrhœal inflammation of the urethra, vagina, or cervix uteri apparent.
2. The supervention of endometritis, salpingitis, and ovaritis about a month after the appearance of the rectal discharge.
3. The efficiency of ichthyol and glycerin tampons in curing the disease without recourse to operative measures.
4. The necessity of looking beyond the vagina for evidences of gonorrhœa, as, according to Bumm, it is rare for the disease to begin in the vagina, usually showing first in cervix uteri or urethra.

Obesity with probably Fatty Heart accompanied by Dilation and Mitral Insufficiency complicated with Bronchial Catarrh and Pulmonary Edema.—E. R., aged forty years; born in Ireland; weight, two hundred pounds. Began to grow fleshy at twenty-four years of age, and has been increasing in flesh since. Family history good.

I saw her first on November 11, 1892, when she had been ill for ten days and confined to her bed, and found her sitting up in a chair and greatly troubled with fits of coughing, wheezing, and dyspnœa, so that she feared she would suffocate, and complaining of great soreness in the right side, probably muscular, due to the violent fits of coughing. Her face wore an anxious expression. Pulse 132 to the minute, and auscultation showed mucous and sibilant râles over the whole chest. The area of dullness in the cardiac region was found enlarged beyond the normal, but I was unable at this time to detect any murmur, it probably being masked by the râles in the lungs. A diagnosis was made of bronchial catarrh and pulmonary œdema, and dry cups were applied over the chest in front, which seemed to give some relief. On the next day, however, the patient seemed to grow worse, and a careful examination revealed a blowing murmur, most distinctly heard at the apex of the heart. Dr. R. C. M. Page saw the case with me on this occasion, confirmed the diagnosis, and advised the giving of a pill of one grain each of calomel, digitalis, and powdered squill every two or three hours until purged, and, to act on the kidneys and tone up the heart muscle, fifteen grains acetate of potassium and a tablespoonful of infusion of digitalis every two hours, with the result that on November 16th the râles and murmur had disappeared and the patient was convalescent. Under suitable after-treatment for the obesity and a heart tonic the

patient ultimately fully recovered her health. I should add that a careful examination of her urine was made and nothing abnormal found.

The point of interest in this case was the relief afforded an overtaxed weak heart by cathartics and diuretics, unloading the peripheral circulation of the intestines and kidneys, combined with a heart tonic.

THE USE OF PEPTOMANGAN FOR ANÆMIA IN PULMONARY TUBERCULOSIS.

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THE anæmia of tuberculosis differs from some other forms in being, as a rule, the result of the deleterious effects of toxins upon the blood, or upon the blood-making organs.

Simple anæmia at times precedes the development of tuberculosis, and becomes a predisposing factor to infection with the specific germs, and in the course of the disease such anæmic states may also result from gastro-intestinal complications. These do not come within the limits of this paper. While the toxic form can not always be distinguished because frequently associated with the other, toxins must be recognized, nevertheless, as a chief cause of anæmia in all contagious and infectious diseases. In its treatment the indication is, of course, the prevention of the production of toxins within the body, which can only be accomplished by the removal of the pathogenic germs, or by the production of immunity from their toxins.

The destruction of the specific germs of tuberculosis within the living organisms, or immunity from their toxic products, occur naturally in strong and healthy persons who show no predisposition to the acquirement of tuberculosis. If infection occurs in such, their tissues, and especially the blood, are capable of offering successful resistance, and the organism is preserved in its integrity.

In the established disease, the resisting power of the particular patient has evidently been insufficient, either by reason of the organism being overpowered by the excessive quantity of infecting material, or by reason of the minor resistance on the part of the tissues where the specific germs gained entrance. This view is so uniformly accepted, and in the light of pathological investigation as well as of clinical experience it is so well proved, that there is no necessity for me to dwell upon it further, neither is its elucidation contemplated in this paper.

While our direct treatment of the disease with specific germicidal remedies, inaugurated by Professor Koch four years ago, is now still further advanced toward success through the purification of the remedy by Professor Edwin Klebs, and by the experience obtained since its introduction, we must, nevertheless, not lose sight of the resisting power of the patient and of its increase; as far as that may be possible, it must be accomplished, if we expect to deal

most successfully with the disease. In the application of the specific culture products in pulmonary tuberculosis my observations have amply confirmed this view, and the best results are being obtained in cases where the general strength of the patient is still good, and especially when the blood approaches a normal standard in corpuscles and hæmoglobin.

Most tubercular patients show a considerable loss in these respects, even in the early stages, and these losses I have often observed to progress despite a good appetite, and in patients who for the time gained in weight. That the anæmia in such cases is of toxic origin is proved by the fact that the losses become balanced under specific treatment, and my records show many instances in which the administration of tuberculin, and more particularly larger doses of antiphthisin (Klebs), showed that a slow regeneration of the blood followed their use, while the febrile movement accompanying the resorption of toxines disappeared.

It is therefore quite rational to seek to aid the regeneration of the blood, the more so as in all advanced cases it takes place very slowly if at all; and in addition to proper dietetic and hygienic management one looks nat-

peptomangan, chiefly because some of my patients positively refused the blood injections, and because of the laudation of the remedy in German medical literature by authorities personally known to me to be reliable.

In its clinical use I found, in the first place, that the remedy was palatable and readily taken by the patients, and from its first use to the present time I have had only two cases in which I was obliged to abandon it. These were cases with tubercular ulceration of the epiglottis, and they complained of more smarting pain and distress than from the swallowing of ordinary liquids and foods, even when the remedy was largely diluted; in all other cases it was well borne by the stomach; in quite a number the appetite improved very early; neither is there evidence of its producing constipation in any case.

It would extend this paper beyond reasonable limits to give the details of the comparative examinations of the blood made from time to time in upward of seventy patients who received this remedy; suffice it to say that the most improved instruments and apparatus were used, and that all sources of error were carefully excluded. The results in the first series of experiments (comparing twelve patients) were as follows:

COMPARATIVE TABLE FOR TWELVE PATIENTS TREATED WITH PEPTOMANGAN SIX WEEKS.

	In six weeks previous the patient had				At beginning of peptomangan.		After six weeks' use of peptomangan.		Under peptomangan the patient had			
	Lost.		Gained.						Lost.		Gained.	
	Number of corpuscles.	Hæmo- globin, per ct.	Number of corpuscles.	Hæmo- globin, per ct.	Number of corpuscles.	Hæmo- globin, per ct.	Number of corpuscles.	Hæmo- globin, per ct.	Number of corpuscles.	Hæmo- globin, per ct.	Number of corpuscles.	Hæmo- globin, per ct.
1.	.....	..	141,000	4	3,400,000	72	3,740,000	83	.....	..	340,000	11
2.	.....	..	88,000	3	2,716,000	58	3,390,000	76	.....	..	674,000	18
3.	.....	2	14,000	..	3,088,000	74	3,176,000	79	.....	..	78,000	5
4.*	740,000	9	.....	..	2,015,000	42	1,792,000	40	223,000	2	.....	..
5.	.....	..	166,000	2	3,853,000	85	4,600,000	92	.....	..	747,000	7
6.†	301,800	7	.....	..	2,610,000	59	3,543,000	88	.....	..	933,000	29
7.‡	.....	..	.....	..	1,807,000	33	3,600,000	69	.....	..	1,793,000	36
8.	.....	..	390,000	4	4,389,000	81	4,422,000	92	.....	..	33,000	11
9.#	.....	..	94,000	10	3,700,000	66	4,800,000	97	.....	..	1,100,000	31
10.‖	511,000	13	.....	..	2,005,000	49	3,983,000	90	.....	..	1,978,000	41
11.△	.....	..	.....	..	1,547,000	27	3,545,000	73	.....	..	1,992,000	46
12.	.....	..	815,000	30	4,002,000	90	4,612,000	93	.....	..	610,000	3

* Patient suffered from advanced pulmonary tuberculosis with occasional colliquative diarrhœa, and had lost in corpuscles 740,000 and hæmoglobin nine per cent. in the four weeks preceding.
† Patient had toxic temperature in a mild degree, and had lost 301,800 corpuscles and seven per cent. of hæmoglobin in six weeks previous; did not receive any specific treatment.
‡ Patient has also received tuberculocidin (Klebs), under which the temperature became normal in the third week; only recently admitted; no previous examination for comparison.

* Early-stage case; received tuberculocidin (Klebs), 0·01 to 3 cubic centimetres, under which tubercle bacilli disappeared from the sputum and physical signs were no longer demonstrable.
‖ Early stage case; gastric catarrh; stomach was washed every day for the first three weeks, then occasionally.
△ Patient just admitted; a month previous suffered from pulmonary hæmorrhage, with acute tubercular pneumonia following; received tuberculocidin (Klebs), 0·005 to 2·4—in all, 21 cubic centimetres; gained eleven pounds in weight.

urally to ferruginous remedies for its accomplishment. This has been my endeavor under every method of treatment, but the available preparations have not only failed me in the majority of instances, but they have frequently interfered with the improvement in other respects by disturbing the digestion and assimilation of food. After many more or less indifferent results I came to discard iron in all pharmaceutical forms, and resorted to rectal injections of defibrinated blood, which, although very inconvenient and frequently objectionable to the patient, accomplished my object most satisfactorily, until some twelve months ago, when I rather reluctantly undertook the administration of

If we now examine this table, we find that in the six weeks previous to the use of the peptomangan we have ten patients in whom the loss or gain in their blood condition could be compared; seven of these patients gained in all 1,408,000, or an average of 200,000 each, whereas these same patients gained under peptomangan 3,609,000 corpuscles, or an average of 510,000 for each.
As to hæmoglobin, a similar increase is perceptible. In six weeks preceding, of the seven patients, six also gained in hæmoglobin in all fifty-six per cent., or an average of nine per cent.; but under peptomangan these same six pa-

tients gained in all eighty-one per cent., and on an average thirteen and a half per cent.

Further, whereas of the ten patients only seven gained in corpuscles and six in hæmoglobin in the six weeks preceding, under the peptomangan nine gained in corpuscles and hæmoglobin, and no loss occurred except in one, and she lost only a third as much as in the six weeks before. Cases VI and X are particularly to be noticed. In Case X, the patient, having suffered a loss of half a million corpuscles and thirteen per cent. of hæmoglobin, gained in the six weeks' treatment with peptomangan two million corpuscles and forty-one per cent. of hæmoglobin. It is, however, true that he also received local treatment for his gastric catarrh; but that treatment was applied during three of the previous six weeks without being able to check the rapid loss. In Case VI, the patient, having previously lost 301,800 corpuscles and seven per cent. hæmoglobin, gained 933,000 corpuscles and twenty-nine per cent. hæmoglobin.

When these comparisons were completed, examinations were made at less frequent intervals, and the use of peptomangan was more generally adopted in my institution.

Another series of cases was more accurately observed within the last six months, and the results were practically the same as in the table. In all cases the improvement of the blood condition was highly satisfactory; in quite a number phenomenal. The degeneration, fragmentation, and disappearance of the tubercle bacilli from the patient's sputum, while heretofore also observed under tuberculin, and more particularly under antiphthisin (Klebs), was certainly more rapid in the cases in which the blood examinations showed rapid improvement—to my way of thinking, a good proof of the germicidal action of the blood, and of the great importance of improving its condition whenever any impairment becomes manifest.

As to the superiority of this particular "iron and manganese" preparation over others, and as to the value of the manganese in the combination, I will not pretend to offer any explanations. I simply wish to record clinical facts, in the belief that all practitioners will gladly welcome any remedy which can so apparently aid in the anæmia of tuberculosis, as appears from the preceding table, and in other anæmic states, as shown from the reports of Dr. H. P. Loomis and other observers.

A STUDY OF PUERPERAL FEVER, OR SEPTICO-PYÆMIA.

BY WILLIAM MOSER, M. D.,

PATHOLOGIST TO ST. CATHARINE'S HOSPITAL, BROOKLYN.

IF by septicæmia we understand that condition in which the infection takes place through the lymphatic channels, producing peritonitis as well as inflammation of other serous surfaces and parenchymatous changes in the internal organs; and if by pyæmia is understood that condition in which the veins are primarily at fault, producing septic thrombi, then emboli with subsequent infarctions in various organs, this anatomical distinction will in the mass

of cases hold good. And yet every pathologist who has seen a number of autopsies of puerperal fever must admit that both channels may be involved in the pathological process, the secondary effects of which may be seen in one and the same cadaver. Only those observers who have not seen a sufficiently large number of cases will not admit this. The term *sapræmia*, as used by some writers, designates a mild form of puerperal fever; but as these cases usually get well, the exact pathological condition remains obscure. It must remain a clinical designation. If we retain the old terms—*septicæmia* and *pyæmia*—what anatomical changes do we find? In both important local changes occur in the genitals. These may be classified into—1. Inflammation of the vulva. 2. Elytritis. 3. Endometritis. 4. Salpingitis. 5. Oophoritis. 6. Parametritis, metritis, and pelvic peritonitis.

The vulva is reddened, œdematous, and ulcerated. These ulcers are covered with a grayish yellow exudation, a superficial necrosis of the mucous membrane having taken place, and an invasion of large numbers of bacteria, especially streptococci. These ulcers may also be quite frequently seen at the lower end of the vagina. They may become gangrenous. The whole endometrium may be transformed into a grayish-yellow, shreddy membrane. A thick membrane forms in some cases, extending deep in the muscularis and filled with micrococci (endometritis diphtheritica); or patches of gangrene are developed (endometritis gangrenosa). The tubes are frequently filled with pus. The ovaries are often enlarged—œdematous. This serous imbibition is so well marked in some cases that the name oophoritis serosa (Virchow) is applied. The inflammation may extend to the parametrium (connective tissue immediately adjoining the uterus). The tissue is œdematous, due to the accumulation of a serous or seropurulent fluid. In cases of so called septicæmia the lymphatics in this region are especially dilated, tortuous, and filled with lymph containing many micrococci. These dilated lymph vessels, on section through the tissues, may be mistaken for small abscesses. Virchow regards this process merely as lymph stasis. Hecker and Buhl regard it as inflammatory. The muscularis of the uterus, too, participates in the inflammatory process. The whole organ itself is soft and flabby. The muscular tonus is lost. The peritonæum covering the pelvic organs may be covered with pus or flakes of fibrin. In some cases few and others many adhesions have taken place. In a few cases these local changes may alone be found at the autopsy. Usually, however, parenchymatous changes in the heart, liver, and kidneys, an enlarged and soft spleen, with general peritonitis, constitutes the picture of septicæmia. While general peritonitis may occur with pyæmia, it must be acknowledged that it is usually associated with septicæmia. Œdema of the lungs and broncho-pneumonia are not infrequent in septicæmia, while pulmonary infarctions are common in pyæmia. That this latter condition should be the distinguishing feature of pyæmia is apparent, since, as previously noted, in true pyæmia the veins are primarily affected. Thrombi in the pelvic veins of puerperal women are physiological; but when these thrombi become purulent

and filled with bacteria, the circulatory system becomes septic, and miliary abscesses in the kidneys and liver, as well as abscesses in the spleen, lungs, and various parts of the body, are produced. Again, these softened purulent thrombi disintegrate, the resulting emboli producing infarctions in the lungs, spleen, etc. Ulcerative endocarditis occurs in a few cases, and may be associated with cerebro-spinal meningitis. The body may be jaundiced, and in two cases seen by the writer parotitis occurred. Retinal hemorrhages (Litten) may occur. Emboli may lodge in the eye, producing suppuration and destruction of the organ (panophthalmitis). Inflammation and suppuration occur in one or more joints. I have seen myositis purulenta.

The blood in both septicaemia and pyaemia presents a slight leucocytosis. Streptococci may be seen, but are not so constant and easily demonstrable as in the different viscera, especially the kidneys (glomeruli). The important question naturally arises, What relation do they bear to the disease? Rod-shaped bacteria are also seen, but the constancy and varied distribution of the round micro-organisms leave no doubt that they play an important part in the whole pathological process. These round micro-organisms present themselves as micrococci, diplococci, streptococci—*i. e.*, according as they are arranged singly, doubly, or in a row. It must be remembered, however, that these round germs are not peculiar to a given disease, as they may frequently be seen in the throat in diphtheria. I have seen them in the colon in dysentery and in mercurial poisoning, in non-puerperal cystitis—in short, in many conditions. And while indirectly these micro-organisms produce many pathological effects, I do not believe that they directly cause puerperal fever. I have seen these germs in so many conditions that it appears to me that all they require is a favorable nidus to aggregate and “live” upon. It is common for the round germs to form chains (streptococci) while they live. Because we find two (diplococcus) of these organisms united is no reason why we are dealing with a specific diplococcus or streptococcus. The rod-shaped bacteria during life also have this tendency to unite in rows. It is regarded by some bacteriologists as characteristic of the anthrax bacillus. In urine which has been left standing for two or three days I have so frequently seen this row arrangement of different varieties of rod-shaped bacilli that I have regarded this property as the natural tendency during life of most bacteria, rather than a characteristic of a given bacillus (anthrax bacillus). There can be no question that certain micro-organisms will only grow and develop where they find a favorable soil. In puerperal fever this nidus is usually developed in a solution of continuity in some part of the general tract. Entomologists as well as bacteriologists are aware that certain bugs require certain media to attract them—to cause them to develop and multiply. By placing cow dung under a board I could always get a particular species of bug. By placing dead tissue—a dead animal—under a board in a wood or field, I could get a particular bug, known among German entomologists as “*Todtengräber*” (grave-digger). Without this medium it would be difficult to get this bug, but with this medium in two or three days countless numbers were found. And yet do these bugs cause the dead tissue?

Let the bacteriologists answer. Where they came from, no man knows. They may aid in the process of putrefaction, and herein lies the danger of the organisms in puerperal fever. In healthy tissue they remain inert; in diseased tissue their pathogenic character becomes manifest. The effects of bacteria are influenced by the media in which they rest (Klein, Waterhouse, Lachowicz).

158 ROSS STREET.

CLINICAL NOTES ON THE USE OF NUCLEIN SOLUTION.

By CHARLES R. MATTSON, M.D.,
PHILADELPHIA.

THE following clinical notes are brought to the attention of the profession, because of the marked benefit attending the use of the nuclein solution in cases which have proved rebellious to other methods of treatment, and for the further reason that this product is now attracting such a large share of attention on the part of clinicians:

Nervous Prostration.—Mrs. —, aged forty-six years, for the past fifteen years has suffered more or less continuously from disordered stomach digestion and gastro-intestinal catarrh; in fact, there was a general catarrhal condition of all mucous structures. A year ago last spring she had an acute attack of indigestion, from which she recovered in a greatly emaciated condition. The general appearance at that time was about as follows: Marked anæmia, with a flabby condition of all the muscular structures, rheumatic pains in the joints, the hands and feet swollen, the tongue large and heavily coated, with most pronounced insomnia. The urine contained neither albumin nor sugar, but there were present some triple phosphates and a considerable percentage of urates (uric acid?). Insomnia was, perhaps, the most obstinate symptom, and the patient would read until two or three o'clock in the morning without the least disposition to sleep. The treatment employed up to that period had consisted in the administration of the salicylates and other approved remedies calculated to ameliorate the suffering, but without avail, further than the relief of the acute symptoms.

During the month of June of the present year my attention was first directed to the therapeutic virtues of the nucleins through the publications of Dr. John Aulde, of Philadelphia, and I determined to give this new product a trial. At this time the general condition of the patient manifested all the symptoms peculiar to malnutrition, such as we observe in lithæmia, neurasthenia, etc. The bowels were obstinately constipated, so that no action occurred without a purgative. The skin was sallow and the nails were brittle. The menopause had made its appearance about a year previously, and the molimen was irregular. About the middle of July last this patient went to the mountainous regions of Pennsylvania for the summer, with the following instructions in regard to medicines: She was to take two tablets of the nuclein solution, each containing approximately a third of a minim, every three hours, and one tablet of strychnine arsenite three times a day, and this treatment alone was faithfully carried out until her return, about the first of September, when she had apparently fully recovered from all the forbidding symptoms which had existed for the preceding fifteen years. The appetite had increased wonderfully, sleep was normal in every respect, constipation had been overcome, and there had been absolutely no difficulty with the digestive apparatus since she had begun to take the medicine. Another

thing which was especially noticeable was the disappearance of the rheumatic pains and the swelling of the hands and feet, and the skin had a remarkably fresh and clear appearance for one of her age. Particular attention should be called to the improvement in the condition of the finger-nails; formerly brittle and with the lines characteristic of the rheumatic diathesis upon them, they are now in a normal condition and possess the peculiar resiliency which is noted in perfect health. The patient has gained twenty pounds in weight, and says she is better than for ten years past. There has also been a most gratifying change in the mental condition; the irritable temper has given place to smiles and pleasant greetings, and there are a buoyancy and mental exhilaration that can not pass among her friends unnoticed. This lady now takes an active interest in everything going on about the house, instead of lying in bed suffering from *malaise*; she has no trouble in securing rest, and rises in the morning refreshed and vigorous.

Pulmonary Tuberculosis.—Mr. —, aged forty years, has been suffering from pulmonary hæmorrhage for the past five or six years. This hæmorrhage I assume to be due to the gradual inroads of the disease, as there is no evidence of active congestion. The patient spits up blood, not only in the morning, but during the day. During the early autumn he was so poorly that he could not be around, and was confined to bed for several weeks; but on a consultation it was decided to send him to Asheville, N. C., and he returned four weeks later, having gained eighteen pounds. After the patient's return from the South he was far from well, and about the 20th of September, 1894, there was profuse expectoration mornings, which consisted of a muco-purulent substance containing tubercle. At that time the nuclein tablets were advised, two tablets (approximately two thirds of a minim) every three hours, and within a week the expectoration was almost entirely relieved. There was no soreness in the chest, the appetite was better, and there had been no bleeding since the medicine was begun. The use of the remedy was continued, and at this writing the patient says he feels stronger, both physically and mentally, than for a long time. I quote from him as follows: "Bring me some more of those tablets, because I feel that they are doing me a great deal of good. Really, I have no pains, and feel very well." This is a very interesting case, and I shall watch it with more than usual care, reporting the results of further treatment.

1819 N. THIRTEENTH STREET.

THE INFLUENCE OF NASAL OCCLUSION OVER CEREBRATION.

By D. A. KUYK, M.D.,

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SURGEON IN CHARGE OF DEPARTMENT OF DISEASES OF EYE, EAR, AND THROAT,
MEDICAL COLLEGE OF VIRGINIA DISPENSARY, ETC.

SINCE Guye, of Amsterdam, first observed and then demonstrated the evil influence, especially "in children," of occlusion of one or both nostrils over cerebration, and named it *aprosœxia*, many confirmatory cases have been reported in special works devoted to rhinology, yet I doubt if the damage or the untoward and often distantly located symptoms produced by this condition are appreciated or understood by the general practitioner; thus the sufferer with certain cerebral symptoms—mentioned in the cases below cited—may be relegated to a class of incurable cerebral cases and so eke out a miserable existence. Special

reference is made by Guye to the influence of this condition in children, but in my experience, in private and dispensary practice, the full and baneful influence of this intranasal abnormality is more pronounced in adults than in children.

The following cases may not be uninteresting to the readers of your journal:

CASE I.—R. A., white, aged forty-three years, by occupation a farmer. Has been slightly deaf for several years, lately increasing very rapidly. Has noticed slight obstruction to breathing for two or three years, which, becoming rapidly worse, totally prevents nasal breathing, and for a year or more has had to breathe through the mouth. For several months he has had a "feeling of pressure, heaviness, and constriction, as if a band were being tightened around his head." His memory has been failing for several months, and is gradually becoming worse; he remembers with difficulty on one day the occurrences of the day preceding; there is an inability of thought concentration and of word forgetfulness, simulating amnesic aphasia. He complains that the remarks of his friends on his appearance annoy him and have become intolerable. His appearance is decidedly idiotic, and owing to his deafness his answers are convincing to his non-professional friends of his mental condition. Prior to the beginning of his affection his mind was perfect, and he was, as he yet is, an industrious worker.

On examination, I found nothing indicative of cerebral disease; no parasthesiæ, muscular power being normal in every respect. Examination of nose: Left nostril almost completely occluded by a deviation of the cartilaginous and anterior portion of bony sæptum. On attempting nasal respiration through this nostril the ala falls inward like a valve, shutting completely the small breathing space he has. The right nostril contained a large and dense hypertrophy of lower turbinate tissue, completely occluding it; tissues of both nostrils a dark red and very sensitive.

There is a follicular pharyngitis extending well up behind the velum palati, and, as I have often observed in this condition, there was an hypertrophy of adenoid tissue.

Both membranæ tympani are a dull white, very much thickened and retracted; watch heard only when firmly pressed against the ears; tuning-fork heard badly through the air, but plainly when pressed on head; bone conduction good. Eyes are reddened, somewhat protuberant; "feel swollen"; tension slightly increased.

On July 10, 1894, after reducing by electric cautery the hypertrophy in the right nostril, also removing considerable adenoid tissue, all of which was allowed to heal, the sæptum was straightened, the denuded surface thoroughly covered with compound stearate of zinc with euophen, the nostril then packed with iodoform gauze, by which the sæptum was held in place; this was removed and repacked as necessary. Three weeks afterward he reported himself much better, breathing easily through both nostrils; eyes look clear, head feels better. Six weeks afterward he says he "is all right, head feels as it felt two years ago, mind working better than for two years, deafness is slightly improved, but does not mind this since his head feels better."

CASE II.—F. K., Hebrew, Russian, aged twenty years, clerk. Parents complain because his health seems failing, his memory also becoming bad. "Snore loudly when asleep; often awakes out of breath." Breathes through the mouth; voice has a peculiar high pitch. He says his head feels heavy, stooping produces vertigo, mouth is always dry; he is much troubled with the discharge from the nose always falling into his throat, often

nauseating him; appetite poor. The patient looks pale, poorly nourished, and gives evidence of scrofula.

Examination of right nostril: Filled with a lobulated hypertrophy of lower turbinated tissue; left side is occluded by bony spur from the lower portion of the septum, meeting an hypertrophy of lower turbinate tissue. Pharynx studded with granules. Adenoid tissue hypertrophied, assuming a polypoid shape. Muco-purulent discharge from the nose and throat. The restoration of nasal respiration by the removal of occlusions and enlarged adenoid tissue, and three weeks' treatment of the catarrhal affection, improved his mental condition to the satisfaction of his parents and himself. He now breathes freely through the nose, sleeps quietly at night, and the voice is improved in quality and pitch.

CASE III.—S. A. W., Jewess, married, aged thirty years. Has always enjoyed good health until two years ago, when she suffered from repeated colds with severe headaches; then the nostrils became completely closed, at which time she began to have a slight cough which, though treated, became worse. The inability to breathe through the nostrils annoyed her, and the cough alarmed her to such an extent that she became hysterical. She now coughs day and night, attacks being so severe as to completely exhaust her. Examination of lungs reveals no change sufficient to account for severity of cough, a few mucous râles in right and left upper lobes. The left nostril is occluded by papillary growths springing from the septum, as well as from the lower and middle turbinate tissue; right nostril is partially occluded—that is, objectively, though patient can get no air through it, try as she may—by hypertrophy of lower turbinated tissue. The removal of this adventitious tissue slightly relieved her cough and partially restored nasal respiration. When right hypertrophy was sufficiently reduced, the posterior naris was seen to be completely closed by a thin shell of bone. From the septum, above one another, were three separate bony prominences. These, with the occluding shell of bone, were removed with an electric drill; the nostrils were now thoroughly patent, and with the return of nasal respiration the cough diminished, and at the expiration of two weeks had entirely ceased. Four months have now elapsed since this patient was discharged; she has no cough and no headache, and her attacks of hysteria have also stopped.

Just how this occlusion of the nostrils can be productive of a subversion of cerebration is not positively known, authors differing as to the manner of production of this mental condition. Who has not had severe headache with an acute coryza; the eyes bloodshot, hot, and swollen; the nose completely closed by the acute swelling of the intranasal tissues, and a feeling of heat, heaviness, and tension across the nose; nor been awakened by the effort attending mouth breathing—the mouth dry and parched, the throat sore, perhaps aching, and swallowing painful? And then imagine this condition lasting for months, possibly a year or two, occurring perhaps, too, in a highly nervous or sensitive individual, it does not need a prophet to foretell the result. The treatment of these conditions is essentially surgical, though the treatment of constitutional dyscrasie is also of great importance and must not be omitted.

4 W. GRACE STREET.

The Wayne County (Michigan) Medical Society.—A special meeting will be held in the Hotel Cadillac, Detroit, on Monday evening, the 17th inst., at 8.15 p. m. Dr. A. H. Ferguson, professor of surgery in the Chicago Post-graduate School of Medicine, will read a paper on The Radical Cure of Hernia.

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THE GAME OF FOOTBALL.

THE rough game of football, more especially as exemplified in recent intercollegiate matches, has been viewed by some of our contemporaries as occupying from a medical standpoint a position apart from other games of contention, and there has lately been more or less of a newspaper crusade against the sport as being exceptionally and dangerously brutal. It seems to us that the criticisms of the medical journals and those of the newspapers concern different aspects of the matter, unless, indeed, such statements as were printed in some of the papers a few days ago concerning the death of a young man in New Jersey are held to be worthy of consideration. The young man is said to have died of spinal meningitis, and the account goes on to say: "The disease was brought about by a kick on the nose received while playing football. The injury developed into a fibrous tumor, which was removed by a New York physician last week. The growth is believed to have extended to the brain and to have produced paralysis." All this is highly suggestive of the rubbish that has been printed—some of it, we regret to say, in medical publications—concerning the alleged horrors due to cigarette-smoking. If we are to deal soberly with the game of football from a medical point of view, we should concern ourselves rather with the influence of the game and of the training and practice incidental to it upon the health of the players than with its occasional complication of vicious or frenzied ferocity. If we take this stand, it is doubtful if more can be said against the game than that it is more likely to overtax the heart than the other games comparable with it. Sprains, ruptured muscles, and dislocated and broken bones are probably, all things considered, not to be assumed as more apt to occur in football than in the cane-rush, for example, and even the comparatively gentle game of lawn tennis is not wholly free from the danger of them. As for its tendency to produce grave injury to the health, it seems to us that football would not suffer in comparison with the tug of war, and we must add that it is far less injurious than rowing races. It is plain, however, that so exciting and turbulent a game as football, as at present played by our college boys, should not be undertaken by any but the robust and those who are fairly advanced in adolescence. The delicate and those of tender years had better avoid it, unless, indeed, under circumstances that insure a mild and fairly even contest.

As regards the alleged brutality of the game, whether essential or incidental, the question of its repression must be solved by the college faculties, the boys themselves, and their parents; it is not one that they will look to the medical profession to assist them in settling.

MINOR PARAGRAPHS.

THE INDEX MEDICUS.

WE regret exceedingly to learn that there is again great danger of the suspension of this most valuable publication. It is said that it will cease to be published with the February number, owing to lack of support and the fact that a large number of its subscribers are delinquent, unless an effort is made to continue it. In announcing the fact, Dr. Hobart A. Hare, of Philadelphia, very properly says: "It is particularly necessary that the *Index Medicus* should be continued, owing to the fact that after the completion of the supplementary volume of the *Index-Catalogue of the Library of the Surgeon General's Office* there will be no record of contemporary medical literature, and he who desires to keep pace with it, or who wishes to study a particular subject, will have to resort to the laborious task of seeking in various journals that which he desires, if the publication of the *Index Medicus* ceases. It will be possible to continue the *Index Medicus* if five hundred new subscribers are obtained."

A MONUMENT TO HORACE WELLS.

THE dentists of Connecticut have done well to testify, as they did last Monday, their appreciation of Dr. Horace Wells's connection with the discovery of anæsthesia. A memorial bronze tablet inscribed to his memory was placed on the front of a building in Hartford. Its unveiling was without ceremony, on account of the state of the weather. In the evening the Connecticut State Dental Society gave a banquet in honor of the fiftieth anniversary of Dr. Wells's demonstration of the anæsthetic power of nitrous oxide.

THE MEMPHIS MEDICAL MONTHLY.

DEATH has lately deprived the *Monthly* of its esteemed editor, Dr. F. L. Sim, who had had charge of it for the last twelve years. He is succeeded by Dr. A. G. Sinclair, and we do not doubt that under his care it will maintain its excellent quality.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending December 11, 1894:

DISEASES.	Week ending Dec. 4.		Week ending Dec. 11.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	22	7	14	7
Scarlet fever.....	78	7	91	10
Cerebro-spinal meningitis....	3	1	2	2
Measles.....	60	2	63	8
Diphtheria.....	188	61	232	45
Small pox.....	16	1	7	1
Tuberculosis.....	99	91	157	120

Diphtheria Antitoxine in New York.—At a meeting of the city Board of Health held on Wednesday, the 5th inst., action was taken in accordance with the following report presented by Dr. Prudden, consulting physician, and Dr. Biggs, pathologist:

"The great practical importance of the new antitoxine treatment for diphtheria, not only in controlling but in curing the disease, has created a demand for the new remedy so universal and urgent that the occasional small supplies which can

be obtained from the European laboratories are wholly inadequate. It is therefore imperative that without unnecessary delay the preparation of the new remedy should be generally undertaken in this country. It has been already begun by the New York City Health [Department in a limited way, and we trust that the requisite means and equipment may soon be furnished to the department for making the antitoxine in sufficient amount at least for local use.

"The preparation of this new remedy requires considerable outlay for laboratories, for the necessary animals and their safe housing and scrupulous care, and, above all, for the services of competent and experienced bacteriologists or specially trained experts. The efficiency of the remedy and the security of those to whom it is administered from any possible danger in its use depend in the most intimate way upon the skill and reliability of those engaged in its manufacture. Careful and delicate tests are required at every stage of its preparation. The strength of each lot of the remedy must, when it is finished, be determined in the most exact way by those in command of the necessary special skill and experience. It is one of the distinguishing characters of this remedial agent that its greatest efficiency is obtained only when it is administered in the earlier stages of the disease, and then in doses possessing a strength absolutely to be relied upon. Should the material used be for any reason deficient in healing power through error, carelessness, or fraud in its preparation, time may be lost so precious to the patient that it may involve its life.

"The antitoxine serum, when ready for use, is a yellowish fluid without any specially distinguishing or characterizing appearance; to the eye resembling the clear, yellowish fluid which separates from blood when it clots, from which it can be distinguished only by exact tests of its curative and protective value on animals.

"The new remedy will be at the best rather costly, on account of the time required for its preparation—always many weeks at least—and the cost of material and animals and of expert services. At present the market price of the antitoxine is unduly great, and probably will be so for some time to come, on account of its scarcity and the great demand for it.

"It follows from what has been said that it is of the utmost importance to those who use this remedy that there should be some reliable guarantee for every preparation placed upon the market that it has been prepared by competent persons, and that in every case it possesses the requisite purity and power. The preparations now occasionally furnished in this country in small quantity by the German pharmaceutical houses, Schering and the Farbwerke (Hochst-am-Main), have specific guarantees as to strength and purity by bacteriologists of universally recognized skill and experience. Unless some such security is afforded, it would be quite easy for unscrupulous persons willing to commit such a crime to place on the market small bottles of yellowish fluid labeled 'antitoxine,' containing an inefficient amount of the healing agent, or even none at all, and for a time at least profit by the extraordinary demand for it, perhaps at the cost of life and at the risk of discrediting a most potent and beneficial remedy.

"That this is not a merely fancied and only possible menace to the welfare of those stricken with this dreaded disease, and so often the wards of the Department of Health, is shown by the fact that already in the city of New York several different preparations of alleged diphtheria antitoxine, said to have been prepared in this country, and wholly, so far as we can learn, without proper guarantee of efficiency, have been furnished and used for the treatment of diphtheria. One of these preparations has been already subjected to the necessary crucial tests by the department and found wholly inefficient and inert.

"While we suggest its importance, we are not prepared at the moment to recommend in detail a definite form of guarantee of purity and adequate strength in this remedy such as would be practicable and desirable for the protection of the public against carelessness or fraud. But we call your attention to the matter at this early period in the use of diphtheria antitoxine in the hope that at least a warning of the medical profession and the public against spurious and unguaranteed preparations of this remedy, if not more drastic measures, may seem to you wise and useful, and appropriate to the functions of this department as a guardian of the public health."

The New York Orthopædic Dispensary and Hospital.—

We learn that the following have been among recent contributions to the funds of the institution: From Mrs. Richard T. Auchmuty, \$10,000, to endow two free beds in perpetuity, in memory of her husband; from Mr. James H. Jones, \$5,000, to endow a free bed in perpetuity; from "a friend," \$4,000, to build a modern operating room; and from two of the trustees, \$500, to furnish and equip the same.

The West Side German Dispensary.—The members of the staff have founded a clinical society styled the Society for Medical Progress of the West Side German Dispensary. The officers are: Dr. Augustin H. Goelet, president; Dr. Lewis Morris and Dr. V. Fuentes, vice-presidents; Dr. Aristides Agramonte, secretary; and Dr. H. C. Hazen, treasurer.

The German Medical Society of the City of New York (*Deutsche medicinische Gesellschaft der Stadt New York*) is to hold a festival this (Saturday) evening, in the Arion Hall, Fifty-ninth Street and Fourth Avenue, to celebrate its thirty-fourth anniversary. The entertainment is to consist of a dinner, with ladies, followed by a ball.

The Northwestern Medical and Surgical Society, of New York, celebrated its twenty-fifth anniversary by a reception at the house of Dr. W. Gill Wylie on Thursday evening, the 13th inst.

Change of Address.—Dr. P. F. Chambers, to No. 450 Madison Avenue, New York.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from November 25 to December 8, 1894:*

STILES, HENRY R., First Lieutenant and Assistant Surgeon. The extension of leave of absence granted on a surgeon's certificate of disability is further extended two months on account of sickness.

LYNCH, CHARLES, First Lieutenant and Assistant Surgeon, is granted leave of absence for one month, to take effect on or about December 10, 1894, with permission to apply for an extension of one month.

McCAW, WALTER D., Captain and Assistant Surgeon, is granted leave of absence for four months, to take effect on or about January 20, 1895, with authority to go beyond the sea.

PORTER, ALEXANDER S., First Lieutenant and Assistant Surgeon, is granted leave of absence for four months on a surgeon's certificate of disability, with permission to leave the Department of Dakota.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending December 8, 1894:*

BRIGHT, G. A., Medical Inspector. Ordered to the Navy Yard, New York.

DICKSON, S. H., Surgeon. Detached from the U. S. Revenue Steamer Dale and to await orders.

DICKINSON, DWIGHT, Surgeon. Detached from the U. S. Revenue Steamer Richmond and ordered to the U. S. Steamer Minneapolis.

GATES, M. F., Passed Assistant Surgeon. Detached from the U. S. Revenue Steamer Richmond and ordered to the U. S. Steamer Minneapolis.

Society Meetings for the Coming Week:

MONDAY, *December 17th*: New York Academy of Medicine (Section in Ophthalmology and Otology); New York County Medical Association; Hartford, Conn., Medical Society; Chicago Medical Society; Wayne County, Michigan, Medical Society (special—Detroit).

TUESDAY, *December 18th*: New York Academy of Medicine (Section in General Medicine); New York Obstetrical Society (private); Ogdensburg, N. Y., Medical Association; Syracuse, N. Y., Academy of Medicine; Medical Societies of the Counties of Chautauqua (semi-annual), Kings, and Lewis (semi-annual), N. Y.; Baltimore Academy of Medicine.

WEDNESDAY, *December 19th*: Medico-legal Society, New York; Northwestern Medical and Surgical Society of New York (private); Medical Societies of the Counties of Cortlandt (semi-annual) and Tompkins (semi-annual—Ithaca); New Jersey Academy of Medicine (Newark).

THURSDAY, *December 20th*: New York Academy of Medicine; Brooklyn Surgical Society; New Bedford, Mass., Society for Medical Improvement (private).

FRIDAY, *December 21st*: New York Academy of Medicine (Section in Orthopædic Surgery); Baltimore Clinical Society; Chicago Gynecological Society.

SATURDAY, *December 22d*: New York Medical and Surgical Society (private).

Births, Marriages, and Deaths.

Married.

BANGS—HOYT.—In New York, on Wednesday, December 5th, Dr. Lemuel Bolton Bangs and Miss Isabel Hoyt, daughter of Mr. and Mrs. Reuben Hoyt.

VEDDER—BOULTBEE.—In Toronto, on Wednesday, December 12th, Dr. Harmon A. Vedder, of New York, and Miss Effie Boulton, of Toronto.

Died.

BROWNE.—In Washington, on Friday, December 7th, Medical Director John Mills Browne (retired), of the navy.

GAGE.—In Concord, N. H., on Monday, November 26th, Dr. Charles Pinckney Gage, aged eighty-three years.

MULVEY.—In Fresno, Cal., on Wednesday, November 14th, Dr. John S. Mulvey, of Loyal, Wis., aged thirty-six years.

PETERS.—In New York, on Thursday, November 6th, Dr. George Absalom Peters, in the seventy-fourth year of his age.

PINKHAM.—In Montclair, N. J., on Friday, December 7th, Dr. John W. Pinkham, aged sixty years.

SIM.—In Memphis, Tenn., on Tuesday, November 27th, Dr. F. L. Sim, aged sixty years.

STRECKER.—In East St. Louis, on Monday, November 26th, Dr. C. F. Strecker, aged forty-three years.

VAN WINKLE.—In New York, on Friday, December 7th, Dr. Edward Henry Van Winkle, in the eightieth year of his age.

Obituaries.

CHARLES PINCKNEY GAGE, M. D., OF CONCORD, N. H.

By Dr. Gage's death, which occurred in Concord on Monday, November 26th, the New Hampshire profession loses a member who had always been a strong man in its ranks and who had commanded the respect of all his fellows.

Dr. Gage was born in Hopkinton, N. H., on April 5, 1811. He obtained his medical education at the Dartmouth Medical School, at Woodstock, Vermont, at Pittsfield, Massachusetts, and at the Cincinnati Medical College, at which he was graduated. He was induced to go to Cincinnati by the fact that the late Dr. Willard Parker, of New York, had at the time just been appointed to the chair of surgery in the Cincinnati school, and there had sprung up between the two a liking that lasted up to the time of Dr. Parker's death. Dr. Gage practiced in Cincinnati for a time, but returned to New Hampshire for the sake of his health, and entered upon his long and honorable career in Concord. He had a decided bent for surgery, in which he displayed great ability. He was one of the original members of the American Medical Association, and had been president of the New Hampshire Medical Society.

GEORGE ABSALOM PETERS, M. D.

DR. PETERS died in New York on Thursday, the 6th inst. He was a native of the city and a graduate of the College of Physicians and Surgeons, of the class of 1846. During his medical course he was a private pupil of the late Dr. Alfred C. Post. After his graduation he served the prescribed period on the house staff of the New York Hospital, and a few years later he was appointed a surgeon to that institution, also to St. Luke's Hospital. At the time of his death he was a consulting surgeon to the hospitals mentioned and to St. Mary's Hospital, the Woman's Hospital, and the New York Infirmary. Although his hospital work was wholly surgical, he was for many years one of the most successful and popular of the general practitioners of New York. As a hospital surgeon, he was averse to public teaching, but to the small circle of the house staff he was an invaluable teacher and a personal friend, ever ready to guide them without harshness and to appreciate the difficulties with which they had to contend. He was a most amiable and estimable man, and, although he had virtually been out of practice for the last few years, he had kept up his interest in professional matters, so that his loss will be widely felt.

Letters to the Editor.

APOCYNUM CANNABINUM.

No. 775 WEST END AVENUE, NEW YORK, November 25, 1894.

To the Editor of the New York Medical Journal:

SIR: It is interesting, as an illustration of how our indigenous remedies are introduced to the medical profession, to note the statements as to the remedy *Apocynum cannabinum* and the priority of its use.

It is interesting to trace a remedy, as I am enabled to trace this one, from the aborigines to the present time. Not far from the year 1820 my grandfather, Judge John Gray, residing in Chautauqua County in this State, acquired from the Cattaraugus

Indians a knowledge of the use of this herb, which, I think, they called *nunquot*.

In those days physicians were not to be had readily, and clergymen and others prominent in communities were frequently called upon to prescribe for their suffering fellow-creatures, and my grandfather frequently gathered, prepared a decoction of, and administered this root, as I have always understood, with great success in cases of dropsy. I remember distinctly about the year 1847-'48, though but a little boy, accompanying my grandfather to the woods to gather these herbs. Among the whites the herb came to be known as Indian hemp and also as wandering milkweed.

In the year 1844 my father, Dr. P. W. Gray, engaged in the practice of medicine in the city of Buffalo. My grandfather was in the habit of digging this root and others for his three sons, who were physicians, and sending them preparations, all from an innate love of the art of healing, and in this manner my uncle, the late Dr. John F. Gray, of this city, became possessed of a knowledge of the value of the remedy. In 1866 I used apocynum freely, under his direction, in the case of the wife of the poet Bryant, who was very ill at that time with cardiac dropsy.

Professor Valentine Mott, and others in his day, used the drug, usually in the shape of a decoction. The late Dr. John C. Peters experimented with it considerably, even upon himself, and wrote quite freely as to the results obtained; and this occurred in the fifties. A preparation called Hunt's decoction of apocynum became quite celebrated in the professional circles of the day, and was used with varying success in renal, cardiac, hepatic, and so-called idiopathic dropsies. I have in my possession considerable literature upon the subject.

Professor Austin Flint, in his lectures of the winter of 1865-'66, spoke of the use of the remedy in ascites, and I find that he refers to it in his *Practice*, page 509, edition of 1866. Professor Flint came from Buffalo; and in the forties, Dr. Lockwood, whose name has been associated with the use of the drug, was a neighbor and friend of my father.

Thus the *nunquot* of the Cattaraugus Indians is, I think, traced down to the present valuable *Apocynum cannabinum*.

ROLLIN B. GRAY, M. D.

A TESTIMONIAL TO SIR JOSEPH LISTER.

LONDON, November 23, 1894.

To the Editor of the New York Medical Journal:

SIR: Sir Joseph Lister having recently retired from active hospital and teaching work, the occasion has been thought appropriate for presenting him with a testimonial of the esteem in which he is held by his former colleagues and pupils, and committees have, therefore, been formed in Glasgow, Edinburgh, and London for the purpose of raising the necessary funds.

It is proposed that the testimonial shall take the form of a portrait. Subscriptions have been limited to two guineas, and it is hoped that sufficient funds will be collected to permit of some memento of the occasion being presented to each subscriber of that amount.

As there are probably many surgeons in the United States who may wish to join in the movement, but whose names and exact addresses it has been difficult to ascertain, I should be glad if you would permit me to state that subscriptions may be sent to me at 29 Weymouth Street, Portland Place, London W., England, or to one or other of the following gentlemen who have kindly consented to act as treasurers—viz.: Dr. James Finlayson, 4 Woodside Place, Glasgow, Scotland; Professor Chiene, 26 Charlotte Square, Edinburgh, Scotland; Professor

William Rose, 17 Harley Street, London W., England; Dr. Malloch, 124 James St. South, Hamilton, Ontario; or J. Stewart, M. B., 37 South Street, Halifax, Nova Scotia.

I have the honor to remain, sir, yours faithfully,

J. FREDK. W. SILK, *Honorary Secretary.*

P. S. Two guineas are about \$10.23.

UNDERSIZED BABIES.

FRANKFORT, KY., November 28, 1894.

To the Editor of the New York Medical Journal:

SIR: On page 664 of the current volume of your journal is a communication from Dr. Smith on Undersized Babies, and it seems remarkable and will embolden me to put on record my experience with an "undersized."

On the 28th of November, 1866, I delivered a lady of a living male weighing a pound and a half (twenty-four ounces), according to the mother's count after seven months and a half of gestation. The child was so small that I put it into a goblet (one of those old-fashioned dinner goblets), flexing its thighs on its abdomen, and with another goblet of the same size inverted placed over its head, and the rims of the two touched without very firm pressure being made. Artificial feeding was used, and the child was enveloped in cotton wood rather than dressing for two months. He lived and grew to manhood, and I saw him yesterday, hale and well, weighing a hundred and thirty-five pounds.

U. V. WILLIAMS, M. D.

MALTOSE VERSUS GLUCOSE.

SPRINGFIELD, MASS., December 10, 1894.

To the Editor of the New York Medical Journal:

SIR: Your types impair the value of my letter in your issue of the 8th inst., criticising some of Dr. Eccles's statements. By omitting a line and getting parts of two others mixed up I am made to misrepresent what the professor really did say. Thus: "For has he not told us that 'amylase takes the place of ptyalin and digests albuminoids.'" No, he did not tell us any such thing. What he did tell us, and what I really wrote, was: "Amylase takes the place of ptyalin and digests starch (not albuminoids, as printed). The trypsin takes the place of the pepsin and digests the albuminoids." This is shown by the statement a few lines further on: "The two ferments mentioned" (you make me only mention one). Criticism is one thing; misrepresentation, quite another.

DANIEL E. KEEFE, M. D.

Proceedings of Societies.

THE MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Twentieth Annual Meeting, held in Hot Springs, Arkansas, on Tuesday, Wednesday, Thursday, and Friday, November 20, 21, 22, and 23, 1894.

The President, Dr. XENOPHON C. SCOTT, of Cleveland, in the Chair.

(Concluded from page 728.)

The Deformities of American Women resulting from Neglect of Physical Exercise and from a Conventional Mode of Dress were demonstrated by Dr. J. H. KELLOGG, of Battle Creek, Michigan, by means of diagrams.

Diseases of the Accessory Nasal Cavities, their Influence upon the Organs of Sight, and their Modern Surgical Treatment, was the subject of a paper by Dr. C. R. HOLMES, of Cincinnati (to be published).

Hydrocele.—A paper on this subject was read by Dr. W. C. WEBER, of Cleveland, who reported a satisfactory experience with the injection treatment.

The Treatment of Traumatic Cataract attended with Rapid Swelling of the Lens.—Dr. JAMES M. BALL, of St. Louis, read a paper in which he advanced this proposition: In cases of traumatic cataract with rapid increase of intra-ocular tension an operation should be performed, and it should not be linear extraction, but an extraction made with the Graefe knife, and with the incision located in the corneo-scleral junction. The knife should cut from one third to two fifths of the corneal circumference, according to the extent to which the softening process in the lens has advanced. If glaucomatous symptoms supervene, with softening of only a small part of the lens, the corneal incision should be large. If the softening involves the whole of the lens, the incision should be less extensive. The chief merit of the operation, said the author, lay in the avoidance of the valve which was produced by the linear method. In other words, the author's method permitted of free evacuation of all the lenticular substance with the least amount of traumatism. Iridectomy was not made. All *débris* were removed at once. This could not be accomplished by the linear method. The author then reported two very instructive and interesting cases.

Some Observations on Sore Throat due to Concretions in the Tonsils was the title of a paper (to be published) by Dr. LEWIS C. CLINE, of Indianapolis.

Squint, with Special Reference to an Operation, was the title of a paper by Dr. CHARLES H. BEARD, of Chicago, who favored tenotomy with advancement in decided cases.

The Removal of the Auditory Ossicles for the Relief of Chronic Deafness and Other Abnormal Conditions was the subject of a paper (to be published) by Dr. ROBERT C. HEFLEBOWER, of Cincinnati.

Stab Wounds of the Pericardium was the subject of a paper by Dr. H. C. DALTON, of St. Louis, who gave the history of a case in which recovery had followed resection of a rib and suture of the pericardium, the latter having been done chiefly to prevent the formation of extensive adhesions.

The Neatest Method of Circumcising.—Under this title Dr. BRANSFORD LEWIS, of St. Louis, described his modification of the clamp operation. A rubber band was first applied to the root of the penis, to prevent the cocaine employed as a local anæsthetic from entering the general circulation; then the mucous layer of the prepuce was seized from within by means of a forceps of special construction, and drawn forward before the clamp was tightened, thus obviating the objectionable feature of the ordinary clamp operation—namely, that of leaving the mucous layer longer than the cutaneous.

The Management and Treatment of Endometritis and the Prevention of Tubal and Ovarian Diseases was the title of a paper by Dr. WILLIAM H. HUMISTON, of Cleveland, in which the author said that nine tenths of all patients that he treated suffered from some form of endometritis, and its baleful influence on the sympathetic nervous system was marked and manifested by numerous and varied symptoms. The first and important principle in treatment was to relieve the passive congestion of the uterus, and this was accomplished by medicated tampons. The first tampon should be medicated with boric glyceride, iodo-glycerin, or ichthyol-glycerin, and supported by sterilized, non-absorbent cotton tampons. Much good was effected also by the use of galvanism with the negative electrode within the uterus. The septic cases must be treated on modern

surgical principles—with rest, asepsis, drainage, and curetting. When the cases were diagnosed early and the proper treatment was instituted, the abdominal surgeon would not have his belt hanging full of suppurating tubes and ovaries.

The Early History of Rectal Diseases was the title of an historical paper by Dr. S. E. GANT, of Kansas City, who traced the earliest known mention of piles to Moses.

Headaches of Extracranial Origin was the title of a paper by Dr. FRANK WOODBURY, of Philadelphia, read by Dr. I. N. LOVE, of St. Louis.

The Surgical Treatment of Injuries of the Head, Trephining for Blood-clots and Pressure, was the title of an interesting clinical paper by Dr. R. E. HAUGHTON, of Midland, Texas.

Exercise Essential to the Proper Development and Maintenance of Function.—Dr. E. H. McCULLERS, of St. Louis, followed with a paper thus entitled. The paper was interesting, but not readily susceptible of summarization.

Remarks on the Relation of Residual Urine to Vesical Irritation, Especially in Prostatics.—Dr. G. FRANK LYDSTON, of Chicago, contributed a paper with this title. He said it was generally accepted that most of the symptomatic disturbances incidental to certain chronic bladder diseases, especially in cases of prostatic enlargement, were dependent upon the accumulation of residual urine. He had long been impressed with the idea that residual urine *per se* was not so important a factor in genito-urinary irritation as was ordinarily believed. He was satisfied that in a large proportion of men there was always a more or less residuum of urine remaining in the bladder after micturition. If prostatic enlargement or other obstruction attacking the mouth of the bladder developed, there was the typical accumulation of residual urine characteristic of such cases. It would then be seen that there might be at varying periods of life extreme differences in the degree of accumulation of residual urine. The author believed that the residual urine was simply an incident upon which, if taken alone, the symptoms of vesical irritation in no wise depended. Ideally perfect drainage of the *bas fond* could be accomplished only by through drainage from above the tube through the trigone and out of the rectum. There were certain objections to this method which it was not necessary to dilate upon. He simply stated it as his opinion that only by some such procedure could the *bas fond* be thoroughly drained.

Double Nasal Atresia due to Small-pox.—Dr. HANAU W. LOEB, of St. Louis, reported a very interesting case relieved by operative interference.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Meeting of October 10, 1894.

The President, Dr. DE FOREST WILLARD, in the Chair.

Destructive Lesions in Acute Tubal Inflammation.—Dr. GEORGE ERETY SHOEMAKER read a paper on this subject in which he said that so much attention had been given to the clinical history and treatment of tubal and ovarian inflammation that the matter might seem to have been exhausted. Yet cases were not uncommonly appearing where the extensive character of the destructive processes going on had evidently not been realized. It was not every case which tended to recovery on expectant treatment, and it was worth while again and again to call attention to what might occur, if only to induce more men to use the eye and hand in diagnosis, instead of relying altogether on clinical history.

So much attention had recently been given to the subject of appendicitis that the rapidity with which its tissue might break down and the surrounding peritonæum be infected was becom-

ing widely understood, and a prompt appeal was now commonly made to physical examination; and, in the event of doubt, to the highest court available.

The present object was to present again the fact that inflammation of the Fallopian tube also might be rapidly destructive, with the formation of pus in quantity great enough to endanger life through softening and rupture of its limiting wall, whether that pus was highly infective or not. The analogy between the appendix and the tube was not without interest. Both were free in the peritoneal cavity, supported along the edge of a membranous fold; both had muscular, mucous, and peritoneal coats.

They were not unlike in size, though varying greatly; while as to situation, the right tube lay very near and often in contact with the appendix, being frequently involved in the same inflammatory process. They were exposed from within to diverse forms of infective bacteria, but either might be infected from the other by continuity after adhesions had formed.

Catarrhal inflammations which did not go on to pus formation or degeneration of tissue occurred in both structures, but more frequently in the tube, owing to its greater vicissitudes from situation and function.

The very rapidly progressive inflammations, however, going on to gangrene, rupture, and death from peritonitis within three or four days, were relatively common in the appendix and rare in the tube, the destructive process usually taking much longer in the latter case, though everything depended on the character of the infection. A rapidly fatal case with gangrene of the tubal mucous membrane had been mentioned by J. Bland Sutton.

One cause of this difference was mechanical. In the case of the appendix, a hard body, usually fecal, just filled the lumen before the attack began. The swelling of the mucous membrane made the lumen too small for the body inside; pressure resulted which, aided by the ever-present bacterium, in a few hours caused strangulation and local death. In the tube, on the other hand, there was no foreign body and no local pressure, rupture occurring later at a point gradually thinned by diffused pressure and local degeneration.

Another reason for the relatively greater protection of the general cavity of the peritonæum in the case of the tube was anatomical. Between its peritoneal covering and the muscular coat was a quantity of loose connective tissue, which, becoming thickened and distended by inflammatory cell infiltration, greatly strengthened the natural barrier against infection from within in the early stages of the disease, and gave time for the formation of adhesions without. In a tube from one of the cases reported this could be well seen. The wall near the uterine end had been cut partly through, and the outer or connective-tissue envelope, about an eighth of an inch in thickness, was peeled back, showing the central rodlike portion undistended and still intact. That portion of the tube was not irretrievably injured in all probability. In some acute cases the same process was seen in the broad ligament, which, after all adherent structures were removed, remained half an inch or more in thickness instead of only a line or two. The cellular tissue between the folds of peritonæum had been infiltrated. It had occurred to the writer to observe that this condition was best marked in subacute cases which had followed puerperal infection. There was a sense, then, in which what had formerly been called "cellulitis" really occurred, though the ideas of pelvic pathology formerly held had been so largely proved to be erroneous.

Where salpingitis went on to pus formation, the sequence of events was frequently as follows: The abdominal end of the tube was closed and its cavity distended by retention of the secretion of its walls and by pus formation. The layers of the

mesosalpinx were separated until tube and ovary were in contact and adhesion occurred, or else tube and ovary adhered directly without splitting the mesosalpinx. The tube wall became thin and the ovary became involved secondarily through a distended ovarian follicle, when tubo-ovarian abscess resulted. The ovary now enlarged until its pus contents frequently exceeded those of the tube, and measured several ounces.

The after-history of these cases, if they escaped an early death, was usually made up of progressive invalidism varied by intervals of relief, if by chance the pus emptied intermittently into the bowel or bladder.

When the abdominal end of the tube did not close quickly enough, peritonitis, which might or might not be limited, was set up by direct escape of fluid from the end of the tube.

The speaker exhibited a tube, and said that, although shrunken by several months' immersion in alcohol, it served to show the condition of the tube and its free communication with the ovarian sac. The point of softening and imminent rupture was seen as a small opening. It would be difficult for him to believe that these extreme changes had occurred so rapidly had he not had an opportunity of mapping out the parts beforehand.

Another specimen exhibited in its different parts stages in the progress of salpingitis. Near the uterine end of one tube which had been split could be seen the greatly swollen longitudinal folds of mucous membrane not yet adherent together. Mucous surfaces did not adhere, when inflamed, as early as did serous surfaces. These folds, when swollen, very tightly filled the tube, so that it felt hard, and when it was cut longitudinally they appeared to have been inclosed in a space too small for them, so that the incision would not close again. Farther out in the dilated ampulla pus had been found, and the structures were extensively altered in appearance. The fimbriated end had been sealed by covering in the fimbriae and packing them together inside the tube, the serous covering swelling and uniting outside of them. Though they were somewhat adherent together, they still could be distinguished. Later on in the disease they would become disorganized or lost in the wall of what had become simply a pus sac with a smooth, rounded end.

Dr. M. PRICE said he had been much pleased with the report and with the success of both operations. He thought that he could not exactly agree with the doctor in considering a case of eighteen days' duration as altogether acute. Many of these cases went on to a fatal termination before going to such a length of time. He had seen cases of gonorrhœal salpingitis where the gonorrhœa had existed only a few weeks, and the ovarian and tubal trouble only a few days, when the tube had been removed with pus pouring from its end. The gonococcus would probably have been found in great numbers if it had been looked for. In this case there had been a general peritonitis with inflammatory lymph covering the intestines in from twenty-four to thirty-six hours. He remembered three cases of forcible dilatation where general peritonitis with pus pouring from the tubes at the time of operation had existed eight days after dilatation. He believed that many of these cases which ended fatally were considered to be cases of appendicitis. He had also found many of these cases of pelvic trouble complicated with appendicitis. A few months ago he had operated on a woman who had for years suffered with so-called appendix trouble. The principal evidence in favor of this had been the position of the woman, who bent over to the crippled side with her hand in that position. At the operation the tube had been found fused to the ovary. It was often impossible to say in these cases whether the primary disease had been in the appendix or in the tube. In these cases recovery was rapid, because the patient had been prepared for a certain amount of

suffering, and the peritonæum had been educated, as it were, to bear almost anything.

The only thing that he could criticise, and he could do that conscientiously, was the use of gauze drainage. If glass drainage alone had been used it could have been removed at the end of thirty-six hours. There was always sloughing and dirt following gauze drainage. While he used it in abscesses where the peritonæum had not been opened, he insisted on its removal at the end of twenty-four hours, and its reapplication. Where gauze packing was used within the peritonæum the membrane was exposed to injury, and the viscera were wounded in its removal, as it adhered to everything, and its removal required considerable force, unless it was left for a long time. With gauze drainage we ran fifty per cent. more risk of death than if glass drainage alone had been used.

Dr. Senn had recently asserted that glass drainage caused faecal fistula. He could select the cases that were going to have a fistula. At the time of operation in cases of abscess of the ovary or tube which had been allowed to run on for a long time, with several attacks of pelvic inflammatory trouble, we would often find a necrotic bowel requiring the use of the Murphy button for resection. If glass drainage was used with care, and the tube properly placed, the chance of avoiding faecal fistula was very good, and the patient was safe. In a case operated on during the past year he had been sure that there would be an injury to the bowel, for the abscess on the left side had several times discharged through the bowel, and he knew that there had been a sinus or such adhesions as would necessitate wounding the rectum. In this case a drainage-tube had been placed in the left *cul-de-sac*, and within forty-eight hours faeces poured out by the tablespoonful. That case went on as nicely as could be, and the patient had recovered. He could point out four or five cases in the past year where, before the operation had been completed, there had been every reason to expect faecal fistula, and in every case recovery had occurred without difficulty.

Where faeces were discharged through the drainage-tube a little different treatment was required. The tube should be left until we were sure that the drainage tract had been mapped off from the general peritoneal cavity. The treatment of this drainage tract was a matter for consideration. It should not be touched with a syringe, or any attempt made to clean it below the skin. If we did there would be complications and injury to surrounding viscera, giving a fistula which was incurable. All these patients should get well, and the charge that the drainage-tube was responsible for faecal fistula, the speaker thought, was a great mistake. He had seen thirty faecal fistulae, and every one had healed under the treatment mentioned above.

Dr. G. G. DAVIS said that his observation did not correspond with that of Dr. Price, that faecal fistula always healed. He had seen several faecal fistulae, the result of abdominal operations, that had not healed. He could not see why the simple cleansing of a faecal fistula should retard its healing, and he did not believe that it did. Dr. Price's objection to the use of the syringe might be a good one if the nozzle of the syringe was long, and it was thrust in deeply and sufficient manipulation made to materially disturb the parts; but that would be followed by hæmorrhage, and he thought that no one in cleansing the parts would use such violence. If all the patients that Dr. Price had seen had recovered, his sources of information must be limited.

Dr. PRICE replied that Dr. Davis stated that he had seen patients that did not get well, and he admitted that the syringe had been used, and that this had been a good reason for the failure to close. Every fistula which was syringed did badly. The kind of fistulae that did not heal were those due to tuberculosis. There was also another class that did not close, and that

was those where there were sloughs of the bowel from injury, and the bowel was in close contact with the skin, and there was no intervening tissue which could bridge over the opening. These would not heal without an operation, but deep fistulæ, not tubercular and where the lumen of the bowel was sufficiently large, always healed.

Dr. JAMES M. BROWN said he was much interested in Dr. Shoemaker's allusion to the relation between appendicitis and ovarian and tubal trouble. Two cases of appendicitis, among several that he had had in the past year, he believed to be the result of primary pelvic trouble, probably ovarian trouble. In both of these cases an operation had proved the presence of appendicitis. The point he wished to make was that in these cases the probable cause had been primarily some pelvic inflammatory trouble. A third patient still under observation had had recurrent attacks of appendicitis with each menstrual epoch for a number of months. Then the attacks had become more frequent and had occurred between the menstrual periods. For the past two months there had been no attacks. He granted that it required some care to distinguish a condition of this kind occurring in connection with the menstrual epoch, but he thought that the diagnosis had been positively made, and if there was recurrence of the attacks an operation for removal of the appendix would be done.

Dr. H. A. SLOCUM asked Dr. Shoemaker if he had determined the cause of the rapid change in the case reported—whether it had been due to the condition of the patient or to some particularly malignant germ. The history of the first case emphasized the necessity of taking special care in the treatment of cases of miscarriage, and, if possible, to thoroughly cleanse the uterus and thus prevent troubles which might follow long afterward.

Dr. SHOEMAKER said in reply to Dr. Slocum that the rapid growth of the abscess was not without its analogy in other parts of the body where there was no dense fascia, and where the tissues involved were only connective, muscular, or glandular. We had the rapid formation of large abscesses, the material in which came from the degeneration of the cell infiltration after inflammation.

The question of the use of gauze drainage in tubal and ovarian inflammatory troubles did not often come up in operations, as total removal and careful toilet usually sufficed. In this case the adhesions had looked so black that he hesitated to trust to glass drainage alone, and the result had satisfied him with what had been done. He did not recall that he had had to use gauze drainage in a tubal or ovarian pus case before, and he hoped never to do it again; but we all knew by experience its value in some forms of appendicitis. If a handkerchief of gauze was used, with a ligature attached to its center inside, and this was stuffed with strips, the removal was facilitated.

SOCIETY OF ALUMNI OF BELLEVUE HOSPITAL.

Meeting of October 3, 1894.

The President, Dr. C. C. BARROWS, in the Chair.

The Diagnosis and Treatment of Tubal Pregnancy, with Report of a Case.—Dr. IRVING S. HAYNES read a paper with this title. (See page 737.)

Dr. HENRY M. SILVER said that in connection with this paper he would like to present a specimen and history of a similar case. The case had been one of extra-uterine pregnancy with rupture of the sac. Mary L., thirty-five years of age, suffering from pulmonary tuberculosis, had married ten years before, and had two children, nine and seven years of age, respectively. Menstruation had been regular after the birth of her last child

until April, 1894, when she had aborted at the sixth week. It had then recurred normally in May and June, and again on July 13th, after which it had ceased to recur. On September 3d she had experienced a sharp pain in the right groin, and there had been a slight "show" of blood. The latter had subsided after one day's recumbency. On September 16th she had lifted a basket of coal, and had experienced a severe pain. There had been slight discharges of blood and decidua until the 21st, when early in the morning she had become faint, and had felt herself growing suddenly weak. A physician had been immediately summoned from the neighborhood, who, on examination, finding the os slightly dilated, had diagnosed abortion, and had treated the case on general principles. Early in the afternoon the patient had been seen by her regular family physician, Dr. Charles E. Nammack, who had at once diagnosed tubal pregnancy and had suggested operation. At five the same afternoon, the neighboring physician had again seen the case, and had removed from the vagina a decidual membrane, but had found no fœtus. He had then informed the family that the abortion had been completed, and that no operation was needed. Dr. Nammack had invited the speaker to meet him at the patient's house, and had requested him to come prepared to perform abdominal section. When they had reached the house, they had found the patient's condition had changed for the better—the pulse had become stronger, the face less pallid, and she had been quite free from pain. On examination *per vaginam* the os had been found to be patulous, a firm rounded mass had been felt in the left broad ligament close to the uterus, and the *cul-de-sac* of Douglas had seemed to be free. External examination had revealed a rounded mass of the size of a small orange above the pubes and to the left of the median line. This had been quite painful on pressure. The speaker said that he had coincided in the diagnosis of tubal pregnancy made by Dr. Nammack, but on account of the mass being circumscribed, and the great improvement in the patient's condition since morning, he had thought the rupture had taken place extraperitoneally between the layers of the broad ligament, as mentioned by Keith in his recent work, and also by Greig Smith, and he had accordingly advised delay until the next day. Dr. Nammack had thought the operation should be done at once. The next morning the patient had been suddenly seized with nausea, syncope, and all the evidences of profuse internal hæmorrhage. Word had been sent at once to Dr. Nammack, who had then requested the speaker to meet him at the patient's house as soon as possible. She had greatly changed since they had last seen her—her face had become waxy pale, the pulse weak, the tumor to the left of the median line more prominent. A vaginal examination had revealed the *cul-de-sac* of Douglas filled with a soft mass which extended on both sides as far as the finger could reach. The patient having recovered from the shock of the second hæmorrhage, had been prepared for operation, and chloroform had been given on account of the pulmonary tuberculosis. On opening the abdomen a large quantity of fluid blood had gushed forth. The tumor had proved to be a tubal gestation sac at the point where the left tube joined the uterus. An opening plugged with a clot had been found in its anterior wall; the omentum, which had been adherent to the posterior wall, had been separated. The broad ligament had been ligated in sections, as it had been impossible to make a pedicle on account of the situation of the sac. During the manipulation the clot in the opening in the sac had been displaced with a gush of blood, and in this blood had been found a macerated fœtus. When the sac had been reached, the patient's condition had been desperate, so that a clamp had been placed between the sac and the uterus and the sac quickly removed. An enormous quantity of clotted blood had been removed from the pelvis

and lower portion of the abdomen, and the cavity flushed with hot sterilized salt solution. This had improved the patient's condition. Strychnine had also been given hypodermically, and the anæsthetic discontinued. A gauze drain had been inserted and the abdominal wound partially closed. The patient had been placed in bed, but, in spite of injections of salt solution and free stimulation with brandy and strychnine, she had died thirty-six hours afterward, never having completely rallied after the operation.

This case had made a profound impression and had taught him by actual experience that there was but one method of treating all patients giving a history of pregnancy, with sudden pain and evidences of internal hæmorrhage, whether or not there were any external evidences of an abortion—viz., to open the abdomen at once, check the hæmorrhage, and treat the sac and abdominal cavity on general surgical principles.

Dr. R. A. MURRAY said that one important ætiological factor in connection with tubal pregnancy had been found to be a spiral twisting of the tube. One of the German operators had stated that in every case where a laparotomy had been done for a tubal pregnancy, the other tube should be examined to make sure that there was no such twist, thus avoiding a second laparotomy. Two such secondary laparotomies had been reported. If rupture had occurred, of course the indication was plain. The family physician was often blamed by the specialist for not having made a diagnosis of tubal pregnancy, but this was always a difficult matter even in the hands of experts—in fact, the diagnosis of normal pregnancy at the third month was not always easy. He had had occasion to examine a great many cases of early pregnancy, and had found it by no means easy, especially if the patient was stout. In cases of tubal pregnancy there was not always suppression of the menses, and there might not be the other signs of pregnancy, such as a violaceous tint of the vagina and the tinting of the areola of the breasts. There would often be an irregular discharge of blood from the cervix, and sometimes also a discharge of small shreds. Among the more marked symptoms were frequent and painful micturition. This he had observed quite frequently. The discharge of decidua might or might not occur. When it did occur it was usually in the second month. Nausea he had not found very marked. The uterus was generally pushed forward, and to one or the other side. The tumor was frequently not very large—not so large as a pyosalpinx or a fibroma. Even though an immovable mass should be found in either broad ligament, one could not be sure of the existence of a tubal pregnancy. If, however, fluctuation could be detected in the mass the diagnosis would be facilitated. On rare occasions when the pregnancy passed over the third month it was possible to obtain ballottement. Where rupture had occurred, the symptoms indicated an inflammatory process or some acute inflammation of the pelvic organs. We could not always diagnosticate the condition then unless we had previously examined the patient. Where an opportunity was afforded, an important aid in diagnosis would be derived from watching the growth of the tumor.

Coming to the question of treatment, the speaker said that the profession a short time ago had been divided into two classes—those who advocated the use of galvanism and those who favored the performance of laparotomy. He thought Dr. Thomas had stated it well when he had said that galvanism could be used without adding to the danger of the condition. It should be remembered that in one case rupture had occurred under this treatment, and that in two or three others dangerous symptoms had been developed by the treatment. Another important point was that the leaving of such a mass might cause danger from rupture of the large vessels on the surface of the mass, thus causing profuse hæmorrhage.

When the diagnosis of rupture had been made, the question arose as to whether or not an operation should be performed at once. Naturally, one would at first say "Yes." But where the patient was almost pulseless the opening of the abdomen was sufficient to cause death from shock. It had been well said that when the patient was in a condition of marked shock we should not operate unless there was evidence of profuse hæmorrhage until the patient had been revived by the use of salt solution subcutaneously and by the rectum. Last Christmas he had had an excellent example of the value of such injections in a case of profuse hæmorrhage associated with placenta prævia. The patient had been apparently *in extremis* when the injections had been given, yet by tamponing the uterus and resorting to these injections, and subsequently removing the placenta, he had certainly saved this patient's life. This was an example of what he meant by postponing the operation when the patient was in a state of marked collapse. The speaker also recalled another case in which he had made a diagnosis of ectopic gestation in a patient seen in consultation, when she was apparently moribund.

Dr. F. H. WIGGIN said he had been very much interested in the paper, and wished to congratulate the author on the diagnosis and the successful treatment. He had also been greatly interested in the remarks made by the last speaker about postponing the operation in cases of severe shock. He thought that hypodermic injections of morphine combined with strychnine would greatly aid the injections of salt solution.

Dr. A. BROTHERS said that he had reported to this society some years ago a case of ectopic gestation somewhat similar to that narrated in the paper. The patient had presented symptoms of pregnancy and miscarriage. She had been etherized with the idea of curetting, but examination had shown the condition to be one of ectopic gestation. Dr. Denhard, Dr. Huber, and Dr. Joyce had agreed in the diagnosis, and, as electrical treatment had then been very much in vogue, a strong faradaic current had been applied. Subsequently the treatment had been repeated eight or nine times without anæsthesia. The treatment had been entirely successful in this case. All the unsuccessful operators, he thought, were not so honest as Dr. Silver in reporting their cases. All must admit that the opening of the abdomen was a serious matter, and there were many cases in which this theoretically perfect treatment could not be carried out, because the patient would not give her consent. Again, there were many physicians who could not perform abdominal operations as safely as Dr. Haynes had done. Hence, for these two classes of cases another method of treatment, if effective, was very desirable. It should not be forgotten that electricity had been successfully employed. He had had an opportunity of looking up the subject about a year ago, and had been able to find only one instance of death following this treatment out of seventy-eight collected cases. In the fatal case death had not occurred for forty minutes after the application of the current, so that the operator had had time to open the abdomen if he had desired to do so. In these statistics he did not include cases of electro-puncture. He believed that electricity had been put in a bad light because of including these cases of puncture. Puncture alone was by no means free from risk. When internal hæmorrhage was believed to be present, of course electrical treatment was not to be thought of. He had also studied up these cases with regard to the ultimate effect of leaving a mass behind in the abdomen. No case had been considered that had been followed for less than twelve months, and, in a series of twenty-five such cases, in not a single one had a subsequent operation been demanded, nor had any serious symptoms developed which were directly traceable to the foetal mass left in the abdomen. While he was willing to

acknowledge that the ideal treatment of tubal pregnancy was by operation, he believed it only fair to allow a certain class of cases to be subjected to the electrical treatment.

Dr. MURRAY said that he had not intended to say that three cases had resulted fatally immediately after the application of electricity. He knew of only two such cases; but in a third the operation had been demanded for the control of hemorrhage.

Dr. H. S. HOUGHTON said he would speak briefly of two cases illustrating the difficulties besetting the general practitioner. In one case the patient had missed two menstrual periods and had been near the third. She had been flowing continuously for some time, and had been at his second visit in a condition of collapse. Two large pieces of membrane had just been discharged, and she had been suffering intensely from pain in the left side of the abdomen. Dr. Cragin had seen the patient with him, and had performed abdominal section upon her. The abdomen had been found full of blood. The patient had recovered well. He had thought then that he knew all about tubal pregnancy. The next case of the kind he had seen had been that of a woman, twenty-eight years of age, who had menstruated with perfect regularity up to two weeks before, when she had skipped a week, after which there had been a slight flow for two more weeks. It had been nearly time for the second period, when she had experienced intense pain in the abdomen, extending down into the thighs. She had had nausea and other signs of early pregnancy. Examination had shown a swelling in the neighborhood of the right tube, her temperature had risen to 103°, and at intervals of two or three days she had had attacks of abdominal pain. After a short time pieces of membrane had been discharged, and on microscopical examination had been reported to be only masses of fibrin. Dr. Cragin had seen this case also, and had advised examination under ether; but the patient had absolutely refused to take ether. From that time on she had begun to get better, and since then had entirely recovered. He had then thought that he did not know so much about tubal pregnancy.

The PRESIDENT recalled one or two illustrative cases. Regarding the difficulty of diagnosis and the non-advisability of operating at the time of rupture, he referred to a case under the care of a prominent gynecologist in this city. The patient had had a retroversion, and had been frequently examined by the physician on this account; she had been at times irregular in her menstruation, but no uterine or ectopic pregnancy had been suspected at any time. One evening a practitioner in the neighborhood had been hurriedly sent for, as she had been suffering intense abdominal pain, and there had been a profuse discharge of blood from the uterus. The same physician had seen her a few hours later, and had given her morphine. A few hours after this the speaker had seen her again, and had found her in collapse. Meanwhile her own physician and two other prominent medical men had seen her in consultation with the speaker. No operation had been advised because of the extreme weakness of the patient at the time, but she had been given saline injections and injections of morphine and strychnine. After about twelve hours of this treatment the pulse had returned at the wrist. Examination through the vagina had revealed absolutely nothing indicating to him that rupture had taken place into the peritoneal cavity. A few days later a mass had been found on the right side, which had greatly diminished, and in due time she had recovered. There was still a slight thickening on that side. Here was a case in which there had not been even a suspicion of pregnancy, although she had been almost daily under the observation of a gynecologist. In another case, seen at Bellevue Hospital in July, 1893, the diagnosis had been made of suppurating tubes, and coeliotomy had been advised. This had

been declined, and so it had been determined to attempt to remove the tubes through the vagina. The uterine artery on that side had been tied, and a free incision made into the lateral fornix of the vagina. To his surprise, a tubal pregnancy had been exposed. This had been removed, and the aperture stuffed with gauze. The woman had made an excellent recovery. He was of the opinion now that, if the diagnosis could be made early enough, an operation could be performed through the vagina. To his mind there was a decided objection to opening the abdomen from above if the seat of trouble could be reached by the vaginal method.

Dr. HAYNES said that one point not mentioned in the discussion was the liability of these patients to have had a previous abortion—either a very recent one or within a few months. This had been observed in the case he had reported in the paper. Another point was regarding the localization of the pain; it was not always in the one situation described in the text-books, as was shown in his case and in that mentioned by Dr. Houghton. Still another point was that, in making the diagnosis early, if the tube was not found enlarged by ordinary examination, and there was reason to suspect such a condition, the physician should insist upon an examination under an anæsthetic. If two or more examinations could be made, it was easy then to discover whether or not the uterus had grown. By comparing the size of the uterus as found with what it should be according to the calculated period of pregnancy, one could obtain an important aid to diagnosis. In his case at the second examination the uterus had been found to have returned to its normal size. He would suggest the administration of ergot so as to assist the return of the uterus to its normal size, and so aid in this comparison.

New Inventions, etc.

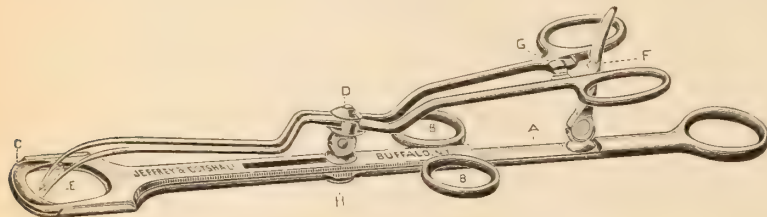
A NEW AMYGDALOTOME.

By W. H. MARCY, M. D.,
BUFFALO, N. Y.

IN selecting an amygdalotome three things are essential: (1) Simplicity; (2) general applicability; and (3) asepsis. After carrying out these suggestions in purchasing an amygdalotome, the removal of a tonsil is simple and comparatively free from danger.

Conditions requiring removal of the tonsil are many—viz., when the seat of malignant neoplasms, such as sarcoma and carcinoma, while cystic tumors, lipoma, angioma, fibroma, and lymphoma are among the benign new formations which attack the gland. All the amygdalotomes I have seen will operate successfully only when the tonsil is hypertrophied and will drop within the ring-knife. In chronic lacunar disease of the tonsil in which the degree of hypertrophy is slight, and in hypertrophied tonsils which are flat and oyster-shaped, or in any condition when the tonsil will not drop within the ring-knife, a small and insufficient slice of tissue may be removed by forcibly pressing the ring-knife against the tonsil, or by employing the fingers externally to press the tonsil within the ring-knife; but objections arise to these procedures. In using pressure externally all the intervening tissues are crowded against the tonsil, and in pressing the ring-knife against the tonsil the gland sinks into the surrounding tissue, and it is a matter of guess how much of the tonsil and neighboring tissue is being removed. In these cases it is better to use a tenaculum and curved scissors or electricity for lack of better appliances.

In the accompanying cut I present to the profession an instrument which fulfills all requirements. The instrument consists of three principal parts: A, B, and D. A, a staff, at the end of which is a ring, C; B and B, two rings made to receive the index and middle fingers of the operator's hand, and attached to a rod which plays upon the staff A, at the end of which is a ring-knife which rests within a groove in the ring C. Attached to the staff A, at D, is a forceps with scissor handles; the blades of the forceps are curved and toothed at the end E and are capable of passing through the ring-knife for five eighths of an inch. The blades of the forceps lock four times before the teeth E come together by a serrated catch G. By pressing down on the handles of the forceps the teeth E are made to recede



from the ring-knife, locking four times at intervals of an eighth of an inch after clearing the ring-knife, by a catch spring F.

The working mechanism of the instrument is simple: Pass the teeth of the forceps E through the ring-knife; grasp the tonsil; draw as much of the tonsil within the ring-knife as you wish to extirpate, and draw the knife by the rings B and B. When the tonsil unaided will drop within the ring-knife, the forceps may be detached at D and you have simply the staff A with ring-knife to apply.

By removing the caps D and H all the parts are detached for cleaning—a thoroughly aseptic instrument.

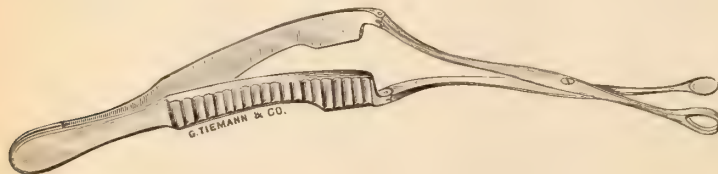
I am indebted to Messrs. Jeffrey & Gotshall for their precision in executing my design.

1148 MAIN STREET.

A NEW CONCHOTOME.

BY J. W. GLEITSMANN, M. D.,
NEW YORK.

THE various conchotomes in use for removal of the middle turbinated body all open and close, as far as the writer knows, in a vertical direction. While undoubtedly the operation can be successfully performed with these instruments, it must not be lost sight of that the longest diameter of the middle turbinated is the vertical, the shortest the horizontal one. A natural conclusion based on this anatomical condition suggested an instrument cutting horizontally by insertion of its blades on each side of the turbinated. In this manner the instrument can be pushed to almost any desirable depth with one branch between



the septum and turbinated and with the other between the latter and the outer wall.

The conchotome represented in the drawing and made by Tiemann & Co., of this city, has only one cutting blade, the other being of soft metal to prevent blunting of the knife-edge. A separate instrument is necessary for each nostril, as the cutting blade is intended for introduction on the outer part of the turbinated. With this conchotome large pieces can be

removed with each insertion, the operation therefore being accomplished much quicker than ordinarily, and in cases in which the middle turbinated lies close to or presses against the septum, the metal plate can be pushed between the two parts without injuring the tissue and the operation performed in the aforesaid manner.

A USEFUL DEVICE FOR HOLDING A PUS-PAN UNDER THE EAR.

BY R. H. CUMMINS, M. D.,
WHEELING, W. VA.

EVERY physician who has syringed an ear knows the inconvenience to which the patient is subjected when the water trickles down the neck and the arm is cramped from holding the pus-pan. A very simple device for supporting the pus-pan under the ear I have found extremely serviceable and convenient. The holder is made of wire and is light, durable, and adjustable, and any tinsmith can make one in a few minutes. When placed in position, as seen in the cut, it fits snugly and comfortably under the lobe and leaves both hands of the operator and patient free.

The wire frame may be made to fit a small hard-rubber pus-



pan nine inches by three inches and a half. The device has saved me much annoyance and commends itself to one as a labor-saver.

AN IRRIGATING ATTACHMENT FOR A SPECULUM.

BY C. S. JUDY, M. D.,
MIAMISBURG, O.

In the *New York Medical Journal* of November 4, 1893, I noticed the cut and article of Dr. Davis, of Rochester, relative to an irrigating speculum. I liked it so much that I determined to secure one; but, while waiting on my correspondence, I fell upon the idea I am about to explain. It pleased me so well I never went to the expense of buying another instrument, of which I had a good supply, yet I have no doubt I should like Dr. Davis's very much.

I imagine a good many physicians are like myself, and would like to do with as few expensive things as they can and yet get the same amount of good.

The article I am using is a hard-rubber funnel, three inches and a half in diameter at the larger opening and half an inch at the smaller.

I dipped the funnel into boiling water, and made one side of the mouth flat while the other remained concave. I then drilled

a small hole on either side, and fastened a small coil of wire like a bail to a bucket. To the small end of the funnel I attach a half-inch hose by simply slipping it over, and of any length desired.

When I want to irrigate I introduce the speculum, make all necessary examination, and then attach the funnel, slipping the handles of the instrument into the mouth of the funnel, which has the convex surface to the perinæum, the bail and flat side out. I next slip the coil bail over the rim of the speculum, where it holds the funnel snug and tight. In this way an irrigation of any quantity may be made in the bladder, the uterus, the vagina, or even the rectum, without soiling the clothing or annoying the patient. I have used this plan for a year, which I decided to do before I reported it, and I am pleased with it more now than originally.

I like it because I can treat patients and not soil the clothing. It is never in the way, and is easily arranged and cleaned. It is inexpensive and can be used with almost any speculum but Sims's. It forms a joint with the speculum, and, if the patient is not just in the proper posture, it acts just the same, unless bent so far as to allow of overflow, which is all that is necessary to watch.

Every physician who does this kind of treatment can readily secure one of these funnels for fifty cents, make the rest himself, and be thoroughly equipped for this work to his entire satisfaction, I believe.

It seems so simple that many may have used this plan before, but to me it was original.

I have thought I should get a larger tube to one funnel for curetting, but this is hardly as important as it might seem, for in these cases it is hardly necessary to have an escape of this kind. As I have been using it, I am perfectly satisfied, and think those who try it will be also.

Miscellany.

Hydrotherapy in the Treatment of Pulmonary Tuberculosis.—The November number of the *Therapeutic Gazette* publishes an article on this subject by Dr. Karl von Ruck, of Asheville, N. C., in which the author treats of the use of cold water in the course of chronic pulmonary tuberculosis. He presents the results of his experience with the remedy, after having made use of it for the last six years in his special institution for consumptives, where it has been employed in various forms in many hundreds of cases. The first of the purposes for which the author recommends the use of cold water is improvement of the nutritive processes. For this the cold rub, the cold full bath, or the shower-bath, or a combination of them may be employed. The cold rub is given in bed, using water at a temperature of 90° F., which is applied quickly and in succession to the arms, the chest, the abdomen, the lower limbs, and lastly the back. Each part, after the water is applied, is quickly dried and vigorously rubbed with a coarse bath-towel until a gentle glow of the skin is produced. The whole procedure requires less than five minutes, unless, on account of slow reaction, prolonged friction is necessary. Every two or three days the water is used several degrees cooler, until a temperature of 50° F. is reached, the rapidity of reduction in temperature depending upon the readiness of reaction of the peripheral circulation. Every patient, unless suffering at the time from pulmonary hæmorrhage, is a proper subject for the cold rub.

The cold bath is simply a full immersion for a few seconds in a

bath-tub, and must be followed by quick and vigorous friction; it acts more powerfully than the cold rub. The temperature of the water is to be graduated in the same manner as for the cold rub; the contraindications are actual or recent hæmorrhage or bloody expectoration, great general debility, and the presence of the menstrual flow. It is best suited for the early stage.

The cold shower-bath is given in an empty bath-tub, with the same regulation of temperature of the water; the time should at first be very brief, and should never exceed two or three seconds. Dry friction must follow. It acts still more powerfully than either the cold rub or the cold bath. It should not be used with patients who are weak and have a subnormal temperature, who react slowly from the rub or from the bath, or who have at the time acute processes in the lungs; hæmorrhage or menstruation also forbids its use. The temperature must be slowly reduced. In one form or another, says the author, these cold applications become the daily practice in every case during the entire course of the treatment, and must be recommended for regular employment after a cure has been established. Their effect soon becomes manifest in a better cutaneous circulation; the patient feels exhilarated, and the appetite improves. Whatever may be the value of the cold bath in fever accompanying other diseases, Dr. von Ruck warns us against its use in septic fever; any immersion, he says, in water cold enough to reduce the temperature materially in such debilitated subjects is fraught with the greatest danger of severe pulmonary congestion, hæmorrhage, and heart-failure. For the purpose of reducing the temperature he has discarded every other measure than the ice-bag and the cold pack, which he finds of great value. The temperature of the water is quickly reduced from 90° to 60° or 50° F.; the latter degrees can, as a rule, be reached in three or four days.

In cases where the temperature rise begins with a chill, reaction from the latter must be established before the cold water is applied, and the author has frequently averted the chill by using hot-water packs for an hour before and for an hour after the time at which the chill had occurred on the previous day, then reducing the temperature of the water from five to ten degrees lower for each change until the desired cold is reached. The packs are changed from every fifteen to thirty minutes or less frequently, according to the degree of fever, the temperature of the water used, and the effect obtained, and this is to be kept up the entire period of the day during which the temperature is above 100° F. When the packs are discontinued for the remainder of the day or night, the chest is washed off with alcohol and rubbed with a little cocoanut oil. Apart from the slight chilly sensation when the pack is applied, a few patients complain of constant chilliness; under such circumstances the temperature of the water must be increased and stimulants administered. Sometimes the treatment must be discontinued entirely on that account. Dr. von Ruck finds this method most valuable in the management of obstinate fevers, and incomparably better than the use of antipyretic drugs. Under the use of the pack, the pulse improves, most patients derive great comfort from it, and the temperature is materially and more lastingly influenced for the better. In milder cases of fever an ice-bag over the region of the heart produces equally satisfactory results.

There are, says the author, other conditions and complications in the course of chronic pulmonary tuberculosis for which writers on hydrotherapy recommend the use of water. After many observations he finds that the water treatment can be dispensed with in preference for other procedures, but, for the purposes indicated, hydropathic applications have been a great help in his special work, and he feels confident that, if patients are given proper care in other directions, this treat

ment will always help, and often turn the scale in the right direction.

The Final Prognosis of Renal Manifestations of Scarlatina.—The *Revue internationale de médecine et de chirurgie pratiques* for November 10th contains a review of a work on this subject by M. Alfred Lid. In the first chapter the author briefly speaks of the varieties of albuminuria that are met with in scarlatina. The second chapter contains a clinical study of the different interpretations relating to the evolution of the albuminuria of scarlatina. The third chapter treats of varieties of albuminuria or renal lesions observed after a long time, among subjects previously attacked with scarlatina, of the course of these manifestations and of the rôle of certain ætiological conditions. The last chapter deals with the prophylactic and therapeutic consequences which spring from the preceding conditions. The essential conclusions, says the writer, are: 1. That the albuminuria of scarlatina, a manifestation of multiple and variable lesions, is either transitory or permanent. 2. That scarlatina exercises not only an immediate action on the kidneys, but also a remote action. 3. That the remote renal manifestations of scarlatina correspond to several types governed by the degree of the anatomical alteration of the kidneys.

An Early Sign of Pericarditis.—At a recent meeting of the *Congrès français de médecine interne*, a report of which appears in the *Journal des praticiens* for November 24th, M. Jossierand advised physicians to look for the indication from the outset of the disease, as it would appear early, preceding the appearance of the friction sounds. On auscultation at the base of the heart in acute rheumatism, first at the situation of the aortic murmur and then at the situation of the pulmonary arterial murmur, the second sound is sometimes found to be more intense at the latter point, also louder, clanging, so to speak. The reverse of this is observed in chronic aortitis, where the murmur is louder at the right side of the sternum than at the left. Sometimes, also, this difference is easily felt by the hand (exaggeration of the diastolic shock of the pulmonic valves). The existence of this sign would lead us to look for the friction sound, which is often discovered at that time, when a superficial auscultation would have allowed it to be overlooked. This condition of the second sound is transitory; it precedes the friction sound by from one to three days, then disappears rather quickly, and the friction sound replaces it.

In acute pericarditis, says M. Jossierand, the friction sound is situated along the left border of the sternum and above the apex. The subjacent myocardium in the neighborhood of the infundibulum of the pulmonary artery is congested and covered with fibrinous deposits. It is that which increases the pulmonic sound.

M. Jossierand thinks that the clinical value of the sign is considerable, because it enables us to determine the diagnosis promptly, and to institute revulsive medication at the proper time.

Pixel in the Treatment of Certain Cutaneous and Venereal Affections.—In an article on this subject in the *Province médicale* for November 17th the writer says that, according to M. Doukalsky, physician at the military hospital of Keltzy, painting with a watery solution of pixel of from ten to thirteen per cent., repeated two or three times a day, is an excellent means of treating acute dermatitis produced by the too energetic employment of ointments for the itch, mercurial frictions, and other medicinal applications. Under the influence of pixel the itching becomes less intense almost immediately, and the inflammatory symptoms disappear in a few days. These paintings give equally good results in the treatment of psoriasis, sim-

ple chancres, and wounds resulting from opening virulent buboes.

The New York Medical College.—This institution, which graduated its last class in 1864, must still have a large number of graduates scattered through the country. A pamphlet giving a complete list of the officers and graduates of the college, together with a short sketch of the institution and its charter, is of recent publication, although dated 1883. It was prepared by the late Dr. Edward Hamilton Davis, who was a member of the faculty, and has been revised, we understand, by Professor R. Ogden Doremus, an ex-member of the faculty. Mrs. Zaidee Scott Davis informs us that she will furnish a copy of the pamphlet to any graduate of the college who may desire it. Mrs. Davis's address is No. 25 West 119th Street, New York.

The Late Dr. Stuart Douglas.—At the seventieth stated meeting of the Society of Alumni of Bellevue Hospital, held at the Hotel Brunswick on Wednesday, December 5, 1894, the following resolutions were adopted:

Whereas, In the death of Dr. Stuart Douglas the Society of Alumni of Bellevue Hospital has lost one of its most esteemed members and friends, whose ability had already brought distinction and gave promise of a brilliant future; therefore be it

Resolved, That this society extend to the members of his family their most heartfelt sympathy; and be it further

Resolved, That this resolution be spread upon the minutes of the society and a copy sent to his family and to the medical press of New York and Virginia.

MATTHEW D. FIELD,
WILLIAM E. STUDDIFORD, } *Committee on*
JOHN M. BROOKE, } *Resolutions.*

WILLIAM NORRIS HUBBARD, *Secretary.*

Thermogenics.—To the tune of *Wing Tee Wee*, with apologies to Mr. Tarbell.

The M. V. M. Association,
A clan of M. D.'s bold,
With their wives and friends by invitation,
Did, like knights of old,
Rally to the Ouachita,
And thereof one might a tale unfold.
Yes, sah! Ha, ha! 'Rah, 'rah? Whoop-la!

Yes, if I list, too much discover,
Of Love and his pranks galore;
For Cupid and Venus round the place do hover,
And many are their victims sore.
But a balm is found upon the spot
In the healing waters from the hills that pour
Red-hot! Sure shot! Jack-pot! Great Scott!

Oh, classic ground is "The Vale of Vapors,"
Where the nymphæ their heads ne'er hide;
Here Mercury cuts peculiar capers,
And Hygeia doth abide—
I'm sure, for Holland told me so—
And 'twas here, they say, that lo died.
So, so! Io! Lie low! Heigh-ho!

Our one-score meet was a true ovation,
Delightful to all, I trow;
For, aside from the feasting and potation,
We've added to the things we know;
But best of all were the folks down *thah*,
Whose hearts are as warm as their H₂O.
Oh-Ah! Sweet Spa! Ark'nsah! Ta, ta!

C. H. BEARD.

CHICAGO, Dec. 1, 1894.

Original Communications.

HYPNOTISM

A UNIVERSAL ANÆSTHETIC IN SURGERY.

By THOMSON JAY HUDSON,
WASHINGTON, D. C.

THE question has often been asked, "Can hypnotism be generally used as an anæsthetic in surgery?" The answer has uniformly been that it can not. Both of the great schools of hypnotism—the Nancy and the Paris schools—unite in the emphatic declaration that "it can not take the place of chloroform." The reason given is that it is impossible to hypnotize a person at the time of an operation except in the comparatively rare cases where the patient has previously been in the habit of being hypnotized. It is generally admitted by all modern scientific writers on the subject that hypnotism can be successfully employed as an anæsthetic in the most severe surgical operations, under certain exceptionally favorable conditions. The first of these is stated above, and the second is that a state of profound hypnotic sleep must first be induced. Most writers dismiss the subject with a statement equivalent to the foregoing.

The object of this paper is not so much to call in question the correctness of the conclusions of writers on this subject as to suggest an entirely new line of inquiry with a view of ascertaining if Nature has not provided a universal anæsthetic in a condition cognate to that of hypnosis. Confining the latter to its original signification, or to that of its Greek radix, it means, simply, "sleep." And it seems probable that the conclusion of the hypnotists regarding the use of hypnotism in surgery may have been influenced by the limitations of the signification of the term; although Bernheim has pointed out that the power of suggestion (which is *the* potent factor in hypnotism) is not confined to the sleeping patient. Indeed, Bernheim's definition of hypnotism enlarges its scope far beyond the limitations of the Bradian definition, which is "induced sleep." He says: "I define hypnotism as the induction of a peculiar psychical condition, which increases the susceptibility to suggestion."* For the purposes of this article this definition will be accepted as substantially correct.

Before proceeding to the main line of argument it may be well to give the non-professional reader a clear idea of the meaning of the word "suggestion" as it is employed in hypnotic science. Suggestion is a statement (true or false) made to a hypnotized subject. Its potency consists in the fact that in the hypnotic condition the subject unhesitatingly believes the statement or suggestion, and acts upon it just as though it were true. Thus, the suggestion may be made that the subject is a dog, or a devil, or an angel, or any historical character, and he will act the part or character to perfection, within the limits of his mental or physical power, firmly believing the suggestion to be

true. Its potency as a therapeutic agent consists in the fact, first, that a subject in the hypnotic state is constantly amenable to control by suggestion; second, that in the hypnotic state the subject has complete control over the functions and sensations of his body; and, consequently, that if the suggestion is made to a hypnotized subject that he feels no pain, all pain instantly ceases. It is thus that a state of anæsthesia is induced which enables a surgeon to amputate a limb without inflicting the slightest pain upon the patient.

Bernheim pertinently remarks that "it is suggestion that rules hypnotism." This is true in the sense that when a subject is in the hypnotic state he is constantly amenable to control by the power of suggestion. This is the fundamental law of hypnotism. It is also true that hypnotism *may* be induced by suggestion. The Nancy school holds that it is and can be induced in no other way. This, as I have elsewhere* pointed out, is a fundamental error; and it is an error that has led to many erroneous conclusions regarding psychic phenomena of various classes.

It is also an error to suppose that it requires a state of profound hypnotic sleep to induce a state of anæsthesia. It is this error that has led to the belief that hypnotism can not be generally employed as an anæsthetic in surgery. It is my belief that in a great majority of cases it can be successfully so employed. I do not pretend to dogmatize on the subject. It is too early for that. But I do say that there are facts in abundance which point in that direction; and they are facts within the common knowledge and experience of mankind. I propose to invite the attention of the medical profession to a few of these facts for the sole purpose of stimulating inquiry and suggesting a line of experiment, which may or may not lead to important results, but which can at least do no harm. If successful, they will demonstrate the existence of a law, hitherto unsuspected, which, properly understood and intelligently applied, will enable the profession to employ hypnotism as a universal anæsthetic in surgery.

The fundamental propositions of my hypothesis are few and easily understood. They are:

1. Persons in the hypnotic state are constantly amenable to control by suggestion.
2. The hypnotic state can be induced without the aid of suggestion.

The first of these propositions no hypnotist of intelligence will question. It is, as before remarked, the fundamental law of hypnotism, and little time will be employed in its elucidation. It is, however, not so generally known that the proposition is true of all grades and degrees of hypnotism. Bernheim has very clearly pointed out the fact that suggestion is potent in many subjects even in what he terms the "waking state"; although it must be doubted whether any one in a perfectly normal condition can be influenced by suggestion so far as to produce an hallucination. That is to say, it must not be understood that the term "waking state" implies that the patient is in no degree hypnotized. It only means that the patient is

* *Suggestive Therapeutics*, p. 15.

* See *The Law of Psychic Phenomena*, p. 89.

hypnotized in so slight a degree that he appears to be awake and in his normal condition. There must always be some degree of hypnosis—some abeyance of the objective senses—to render the subject amenable to control by suggestion. But that degree may be very slight, as the following observations by Bernheim will demonstrate:

"Some of them at least show exactly the same phenomena in the waking condition as in the hypnotic state; some exhibit suggestive catalepsy with muscular contraction, or a varying contracture only; others, catalepsy with automatic movements; others, at the same time, suggestive sensitivo-sensorial anæsthesia; and others still, all suggestive phenomena up to hallucination." (*Suggestive Therapeutics*, p. 79.)

Again, on page 81, we find the following:

"In one of my somnambulistic cases (S—, whose history I have already given) I can obtain all possible modifications of sensibility in the waking condition. It suffices to say, 'Your left side is insensible.' Then, if I prick his left arm with a pin, stick the pin into his nostril, touch the mucous membrane of his eye, or tickle his throat, he does not move. The other side of his body reacts. I transfer the anæsthesia from the left to the right side. I produce total anæsthesia, which was, on one occasion, so profound that my *chef de clinique* pulled out the roots of five teeth which were deeply imbedded in the gums, twisting them around in their sockets for more than ten minutes. I simply said to the patient, 'You will have no feeling whatever.' He laughed as he spit out the blood and did not show the least symptom of pain."

On page 83 the following case is related:

"In G— (Marie, whose case I have already related) I can induce catalepsy, automatic movements, anæsthesia, and hallucinations in the waking condition. I wish only to speak of the anæsthesia. After having ascertained that sensation throughout the body was perfect, I said to her, 'You have absolutely no more feeling in your right upper limb, it is just as if dead.' With her eyes closed she no longer reacts to the pin. She does not know whether her arm is up or on the bed; her muscular sense is gone. In order to exclude all idea of deception, I use Du Bois-Reymond's apparatus, varying the intensity of the current by alternately separating and approximating the coils of the induction apparatus. A rule graded into centimetres indicates the degree of separation of the coils. Now I have already determined that the tingling caused by the electricity was perceived by this subject when the separation between the ends was five centimetres, and that the pain became unendurable, the patient drawing back the arm suddenly, when the separation was from three to two centimetres. These figures remained absolutely the same when her eyes were tightly closed, so that she could not have observed the degree of separation, and I have proved this several times. By this means I determined that the pain is really perceived and not pretended."

"This being granted, I provoke anæsthesia by affirmation, and place the electrodes on her arm with the greatest current attainable with the greatest approximation of the coils. The painful sensation thus produced is normally absolutely unbearable."

Professor Bernheim was, I believe, the first to mention these phenomena of suggestion in the waking condition, in a report made to the Congress for the Advancement of Science in 1883. They have since been confirmed by his European contemporaries, Bottoy, Dumontpallier, Richet,

and others; and in this country the same phenomenon was independently observed by Dr. Hammond.

It must be remembered, however, that these subjects were patients of Professor Bernheim, and had frequently been hypnotized by him before the experiments were tried. The cases have, however, a direct bearing upon the question before us, inasmuch as they show how slight a degree of hypnosis is necessary to enable the operator to produce a state of complete analgesia by suggestion; for it is obvious that a surgical operation of the most severe character could have been performed upon either of the patients mentioned. They are demonstrative that it is not necessary to induce a state of profound hypnotic lethargy in order to perform a painless surgical operation.

My second proposition, that "the hypnotic state can be induced without the aid of suggestion," will now be discussed. I have shown, in *The Law of Psychic Phenomena*, by quotations from the works of Dr. Braid, the father of modern scientific hypnotism and the originator of the term, that a state of profound hypnosis can be induced without the aid of suggestion. I shall not repeat my observations there made, but will attempt to show that Nature has provided a means for the induction of the hypnotic state in all cases where a surgical operation becomes a necessity.

In attempting to do this I shall rest content if I can make a *prima facie* case. I will endeavor to show that the law (of Nature) is on my side, and will then submit the case to a jury of experts consisting of the medical profession.

I will now invite attention to a few well-known facts the significance of which never seems to have been appreciated. In the work before mentioned I have drawn attention to the fact that when a person is in imminent and deadly peril he is instantly thrown into a state of anæsthesia; or, in other words, into a partially hypnotic condition. It is the universal testimony of soldiers who have been in battle that the moment the fight commences all fear vanishes. It is also the universal testimony of those who have been wounded that a stricken soldier never feels a wound, and never knows he is wounded until he is disabled. Surgeon-General Hammond once remarked in my hearing: "A soldier never knows he is wounded unless he is stricken down; and, if his wound is mortal, he dies without pain and without regret." It seems to be a universal law that, when death is inevitable, the nearer it approaches the less it is feared; and that, when it comes, it brings no pain and no sorrow to its victim. The reason is obvious. The patient passes into a hypnotic state, or a condition cognate thereto; and he is in a complete state of analgesia, body and mind, if the term may be applied to the condition of exemption from mental suffering. The phenomenon is strikingly exhibited in cases of criminals who have been sentenced to be hanged. The moment all hope is lost and death is inevitable, they relapse into a state of profound indifference; and, when the fatal hour arrives, they march to their doom without fear, without emotion, and without regret. It is often said of them that they "exhibited great courage" and "died game." The truth is that Nature has done for them just what it does for

all living creatures—viz., it has, upon the approach of death, thrown them into that subjective or hypnotic condition which banishes pain and robs death of its terrors.

Volumes might be filled with illustrations of the fact, which is well known to the medical profession, that when death is imminent or inevitable Nature provides an anæsthetic in the hypnotic condition which insures an easy and painless, if not a pleasurable, passage to the other side. I say "hypnotic condition," because it possesses all the salient characteristics of that state, even to suggestibility, as is shown in the well-known fact that the hallucinations of the dying invariably correspond to the suggestions embraced in their lifelong beliefs.

I now desire to invite attention to another class of facts, which are equally well known, but the significance of which does not seem to have been appreciated. I will begin by citing one which almost any one of adult age can verify from experience. Did any one ever go to a dentist's office with a raging toothache and a firm resolution to have the offending member removed, without finding that all pain ceased as soon as the dentist's office was reached? If any one has had a different experience the fact has not been recorded. There may have been apparent exceptions to the rule, but it will be found that, in every case where the tooth did not cease to ache when the dentist's office was reached, it was because the patient had not fully made up his mind to part with the tooth without first making an effort to save it by some means less heroic than elimination. It may be safely said that, in all cases of toothache where extraction is resolved upon, the pain ceases when the patient approaches the operating chair. This phenomenon means something. Nature does not produce phenomena for fun, and it is the province of science to interpret this meaning on lines which will relieve Nature from the imputation of habitually perpetrating a joke on the victims of toothache. Here, then, is a state of local anæsthesia induced by a mental emotion. That emotion is produced by an approach to a surgical operation. The question is, What is the mental condition thus produced? Is it not a condition cognate to that of hypnotism, and identical with that induced by imminent and deadly peril? Certainly the phenomena are the same, and we have therefore a right to infer that the cause is the same. Nor does this phenomenon stand alone. It is more frequently observed than any other, because every one has had more or less teeth pulled. But it is also true that in other surgical operations all pain ceases when the surgeon begins to display his instruments in presence of the patient. This being true, it may be set down as a general proposition, provisionally at least, that the near approach to a surgical operation will always induce the hypnotic state in a degree sufficient to produce local anæsthesia in the part about to be amputated or operated upon.

We have now seen how slight a degree of hypnosis is required to render a subject amenable to control by suggestion. We have seen that the subject, even in the "waking condition," may be so completely anæsthetized by suggestion as to bear without the slightest sensation a torture which "is normally absolutely unbearable." It is also well known to every intelligent student of hypnotism that per-

sons in the hypnotic state are constantly amenable to control by suggestion. This, as has been remarked, is the fundamental law of hypnotism. It is a corollary of these propositions that, when a patient is about to undergo a surgical operation, he is invariably thrown into a partially hypnotic state, and that consequently all that is needed to insure a painless operation is a vigorous and an intelligent suggestion that he will feel no pain.

I can not but be aware that this is a conclusion so radically at variance with all that has been written on the subject that credulity will be taxed and proofs demanded. I will therefore present a few of the many facts which might be cited in support of my hypothesis. An eye-witness, well known to me to be entirely trustworthy, relates the following:

A boy in St. Louis had one of his legs crushed in a street-car accident, and amputation became necessary. A local hypnotist undertook to hypnotize the patient, but failed to produce anything approaching sleep. In making the attempt, however, he strongly suggested anæsthesia. When it became apparent that the boy could not be put to sleep, the surgeon proceeded with the operation without administering anæsthetics; and, to the surprise of every one present, the hypnotist included, the boy felt not the slightest pain, and conversed coolly and cheerfully during the whole operation.

In this case the boy knew nothing of hypnotism or its expected effect upon him, save that it would secure immunity from pain, and he believed that the mysterious passes were all that were required.

A prominent Washington physician relates the following, not of his own experience, but the facts of which he verified beyond doubt:

A country fiddler had a bad leg which it became necessary to amputate. The surgeon came at the appointed time, prepared with an anæsthetic, which he was about to administer. The patient refused to take it, however, and insisted upon having his fiddle brought to him, saying: "Just give me my old fiddle. I have always fiddled my pains away, and I can do it now." The fiddle was brought and he played during the whole operation, and declared that he felt no pain whatever.

It will be observed that this case illustrates very clearly the fact that auto-suggestion is as potent a factor in hypnotism as suggestion by another.

Another case of auto-suggestion was related by the same physician:

The patient had been a sufferer for many years from a disease of the knee-cap. The skill of the medical profession had been taxed to the utmost limit in a vain effort to mitigate his sufferings, and finally it was decided that amputation was necessary. It was proposed to administer chloroform, but the patient refused. "I have suffered so much misery from the thing," said he, "that I am determined to be an eye-witness to my own deliverance. I am sure it will feel good to have it removed." The operation was proceeded with, and the patient declared that the sensation was actually pleasurable, and his actions verified his statement.

A lady of my acquaintance informs me that she possesses the power to prevent all pain when having her own teeth drawn, or when having them filled, by "treating herself" mentally, after the manner of the "Christian Scien-

tists." A case of effective auto suggestion, pure and simple.*

A few years ago an itinerant lecturer (subject not now remembered) was in the habit of closing his evening's entertainment by offering to pull teeth, "without pay, pain, or anæsthetics." To inspire confidence and make it a possible object, he offered to give twenty dollars to any one who would submit to the operation and assert upon honor that any pain was felt. Two eye-witnesses of undoubted probity have informed me that they saw several teeth drawn under those conditions, and that each patient declared that it was a painless operation.

Surgeon General Hammond, in a clinical lecture delivered at the New York Post Graduate Medical School some years ago, referred to an hysterical patient of his who was so absolutely controllable by suggestion that an hallucination of any kind could be produced in her waking condition. He adds:

"I could at any time render this patient insensible to pain by simply telling her emphatically that all sense or feeling was abolished. I once opened a 'bone felon' on the index finger of her right hand, carrying the knife down to the bone and incising the periosteum without her being sensible of the slightest sensation, and without her being hypnotized in the sense that we give to the word. I merely told her decidedly that she would feel no pain, and she felt none."

Those who have had a "bone felon" lanced will admit that this was a crucial test of anæsthesia.

It should not be forgotten in this connection that the same law applies with equal, or even greater, force to obstetrical cases. The writer has personal knowledge of several cases of painless childbirth where the suggestion of anæsthesia was given by professed "mental healers." If a suggestion in this form is thus effective, how much more potent must be a suggestion made by one who is present and reinforced by such auxiliary manipulations as hypnotists know how to employ!

Many other cases might be cited, but space forbids. The salient points to be observed in all these cases is that they are illustrative of a universal principle or law of Nature; and that law is that the emotion of fear or of dread, as of death, or of a surgical operation, or of

imminent parturition, will invariably throw the patient into the subjective condition; and that, in that condition, the subject is constantly amenable to control by suggestion. This appears to be a universal law, and it applies alike to animals as to mankind, modified by the different degrees of intelligence and the consequent facility for imparting a suggestion. It is well known that many animals can be readily hypnotized by seizure and forcible confinement for a short time, as was demonstrated as early as 1646 by Kircher's well-known experiment with a hen. Since then many other animals have been hypnotized by a similar means; and in some cases it has been demonstrated that a perfect state of analgesia is produced. Thus, Surgeon-General Hammond, whose reputation as an accurate scientific observer is international, has succeeded in hypnotizing frogs, by seizure, so profoundly that he was enabled to cut the animal open its whole length without its moving, or apparently experiencing the least sensation.* Dr. Hammond also succeeded in hypnotizing crabs to the extent of producing a state of perfect analgesia; and many other animals were hypnotized by him, both by seizure and by Braid's methods. A volume might be filled with illustrative incidents showing that animals and men are alike susceptible to hypnotization by exciting the emotion of fear or dread. One of the favorite methods of inducing hypnosis, employed by the late Professor Charcot, was by suddenly and unexpectedly sounding a gong near the patient's ears; or by flashing a Drummond light in his eyes.†

I can not more appropriately conclude this part of my theme than by calling attention to the well-known facts of the history of the Christian martyrs, and their alleged immunity from pain while undergoing the most horrible tortures. The following quotation from Dr. Charpignon‡ must suffice:

"Among the martyrs of Christianity many escaped pain through the ecstasy which came from the ardor of their faith, a phenomenon well known to their executioners, who increased their fury and improved their inventions for punishment. In the same way, at the time of the tortures of the Inquisition, certain individuals became insensible under the influence of their faith in the somniferous virtue of some talisman. Upon this point I will give the following passage, an extract from *Secrets merveilleux de la magie naturelle et cabalistique* (12mo, Lyons, 1629). "Some rascals trusted so strongly in the secrets they possessed to make themselves insensible to pain, that they voluntarily gave themselves up as prisoners, to cleanse themselves of certain sins. Some use certain words pronounced in a low voice, and others writings which they hide on some part of their body. The first one I recognized as using some sort of charm, surprised us by his more than natural firmness, because after the first stretching of the rack, he seemed to sleep as quietly as if he had been in a good bed, without lamenting, complaining, or crying, and when the stretching was repeated two or three times, he still remained as

* Since the manuscript of this paper was forwarded to the publishers I have received a letter from a captain in the British army, whose name I do not now feel at liberty to use, detailing an experiment which he personally made. He knew nothing, at the time, of my theories on the subject beyond what he had read in *The Law of Psychic Phenomena*, but the result furnishes a striking illustration of the principle herein set forth. His wife had a bad tooth, and a dentist was consulted, who informed her that, as the nerve was bare, she would not be able to undergo the necessary operation without anæsthetics. This she refused to submit to, but fixed a time for the operation. When the time came her husband strongly suggested to her that she would feel no pain, and instructed her to hold the auto-suggestion in her own mind during the operation. The result is summed up in the captain's letter to me as follows: "Not only did she not suffer the slightest particle of pain, even when the dentist was working by the nerve, but she could not feel the tooth being operated on. And this is what caused the dentist's surprise. I worked by your plan of suggestion."

* *Nervous Derangement*, third edition, p. 20.

† *Animal Magnetism*, Binet and Féré.

‡ *Études sur la médecine animique et vitaliste*.

motionless as a statue. This made us suspect that he was provided with some charm, and to resolve the doubt he was stripped as naked as his hand. Yet after a careful search nothing was found on him but a little piece of paper on which were the figures of the three kings, with these words on the other side: 'Beautiful star which delivered the Magi from Herod's persecution, deliver me from all torment.' This paper was stuffed in his left ear. Now, although the paper had been taken away from him, he still appeared insensible to the torture, because when it was applied he muttered words between his teeth which we could not hear, and as he persevered in his denials it was necessary to send him back to prison."

It will be obvious to the intelligent reader that the emotion of fear induced the hypnotic state, and that the talisman operated as a suggestion which produced a state of perfect analgesia.

That these facts have some significance goes without saying. That they point to some universal law of Nature is self-evident. That that law, when once discovered, will be found to be for the highest good of mankind is a proposition sanctioned by the results of every discovery yet made in the realm of natural law.

Nature is ever kind to the victim of the inevitable. The truth of this proposition is exemplified in the universal immunity from suffering of all animate creatures during the process of dissolution. We have seen that the process by which this immunity is secured is by the spontaneous induction of the hypnotic condition at the approach of death. We have also seen that the same hypnotic condition is spontaneously induced when a surgical operation becomes inevitable. Have we not a right to infer that Nature has provided for the same immunity from suffering during a surgical operation, or during parturition, as it has for those who are called upon to undergo the process of dissolution? The conditions are the same; but the suggestion has been different, owing to our ignorance of the law. We have been taught that death "eases us of all (bodily) pain"; and it does. The suggestion in that case is on the side of immunity; and the result is that, no matter what form death may assume, the victim dies "without pain and without regret." On the other hand, our daily experience constitutes a suggestion that cutting and mutilation cause pain. That suggestion, in the absence of a contrary one, is carried over into the subjective condition which precedes and accompanies a surgical operation, and the patient suffers accordingly. Again, the curse pronounced upon our grandmother Eve operates as an ever-present suggestion to the mothers of Christendom that painful parturition is an inalienable inheritance; whereas, among other races, this inevitable crisis in every normal woman's life is attended with comparatively little pain or inconvenience. Now, is it not obvious that all we have to do in order to overcome the suggestion conveyed by our ordinary normal experience is to offer to the *already hypnotized* patient a counter-suggestion to the effect that no pain will be felt during the operation? The patient is in that condition which renders all mankind amenable to control by suggestion; and the suggestion of

immunity from pain operates on the lines of Nature's least resistance.

One word as to the practical method of applying these principles. It is obvious that, in order to overcome the suggestion embraced in the daily normal experience of mankind, the counter suggestion should be made in some way that will strongly appeal to the imagination of the patient. It should be made strongly, vigorously, positively, but with due regard to the beliefs, the prejudices, and the general idiosyncrasies of the individual. As in other cases where suggestion is employed, success depends upon the manner in which it is enforced. Hypnotists will readily understand my meaning, and those who are not hypnotists can readily acquire the necessary information by consulting any modern standard work of the Nancy school. One thing, however, should never be lost sight of, and that is the necessity of impressing upon the mind of the patient the fact that *a profound hypnotic sleep is not an essential prerequisite to the successful employment of hypnosis as an anæsthetic in surgery.*

MR. LAWSON TAIT AND THE GERM THEORY OF DISEASE.

By WILLIAM R. PRYOR, M. D.

IN the December number of the *Buffalo Medical and Surgical Journal* is a communication from Mr. Lawson Tait, entitled A Criticism of the Germ Theory of Disease, based on the Baconian Method. My first conception of the paper was that it was intended as a huge joke, a travesty of the arguments of those with pre antiseptic training. But a consideration of the eminence of the essayist convinces me that he is very much in earnest. Mr. Lawson Tait is serious. In my answer to him I shall pass over all that he says about the completeness of his work on the navel-string, about the book of Leviticus, hair parasites, Euclid, laceration of the perinæum, and other entirely irrelevant matters. That my readers may follow me as well as fully appreciate Mr. Tait's remarkable effort, I will quote from him. "Let me remind you of the essence of inductive reasoning in Bacon's own words—a rule which has never been successfully evaded: 'The form which is sought can be detected only by a process of exclusion, by which we find a phenomenon constantly present when the effect is present, absent whenever the effect is absent, and varying in degree with the effect. Such a phenomenon would be the form in question, the cause of the given effect or attribute.' According to this salient definition, is the *causa causans* of decomposition the microbe? Most certainly not. Therefore we can have no microbe theory of decomposition. But if we proceed on true Baconian lines we find that not only are the phenomena of decomposition not those of disease, but there is absolutely no analogy between them. Some appearances of analogy there are, but they are easily destroyed by careful examination.

"Take ten thousand human bodies all perfectly alike, as far as we can see, and drop your germs of typhus about

and see what will happen. The first remarkable fact to be found is that if the bodies are in Birmingham there will probably be no effect at all. If they are in Edinburgh, no effect, or very little, will be seen in the new town; whereas in the old town some commotion will result, and there will be about a hundred cases of typhus. These will be distributed in various centers with mathematical proportion, and probably no two cases will be exactly alike. Clearly, then, according to Bacon, the provocative cause lies not in the germs."

Mr. Tait's views of the causation of disease are well shown in the following quotation: "It is probably the germ of some very ordinary fungus, sporting with deadly growth from the pabulum afforded by the crowd—a suggestion made to me by the late Charles Darwin. At any rate, in this case the fulfillment of Bacon's canon is complete. The phenomenon, a population above a certain density, is always present when the effect, typhus fever, is present. It is universally absent when typhus fever is absent; and the effect, typhus, varies in degree with the degree of overcrowding. The phenomenon overcrowding is, therefore, the form in question, 'the cause of the given fact or attribute.' Littlejohn's facts and figures prove the law of the appearance and existence of typhus, the law of its variation, and they have established the fact of its extinction. You may as well establish a germ theory for this awful disease as for a leg of cold mutton. Not only is the argument from ætiology one of the most complete and perfect kind, but it is supported to a most remarkable degree by many clinical facts. Thus Russell, Murchison, Christison, and Wilson all agree upon certain facts (and no one has even disputed them) that typhus arises *de novo* upon appropriate provocation. Its germ is, therefore, certain to be a sport, forced by the conditions so well described by Howard, and we should expect that the conditions of sport being removed it would speedily lose its temporary malignity and return to its ordinary and probably quite harmless form. This is entirely supported by the fact insisted upon by all authors, that the contagion of typhus does not carry far, and is completely and speedily killed by cleanliness and an abundant air supply. Murchison lays special stress on the small risk to attendants on the fever-stricken if these conditions are fulfilled. All these facts are wholly contradictory of a 'germ theory'; for even if a 'germ theory' were accepted in this case we should immediately point out that the germ was only a temporary existence, and that we have an already well-ascertained cause of its existence. It, therefore, must disappear from the argument, save as a mere stage of a process."

"The phenomenon, a population above a certain density," is not "always present when the effect, typhus fever, is present." Undoubtedly density of population increases the possibility of spreading the disease, and in direct ratio with the number of individuals exposed. But typhus occurs from single exposures and in rural districts; therefore the phenomenon Mr. Tait insists upon is not necessarily present. Furthermore, density of population exists *without* the presence of his "effect, typhus fever," and with all the elements necessary to a "*de novo*" origin. Yet it is never

found so to arise. That something can not spring from nothing, we accept as the simplest truism. That the germs we see now typical of certain diseases once had a beginning in some other form, we must believe. Microscopic life, as well as that of the *vertebrata*, obeys the inevitable law of evolution. When we seek the very first incentive to life we approach the unknowable, and discuss infinity, which finite minds can not grasp. To accept the *de novo* theory of the origin of disease is merely to believe that germs cause themselves. Whatever springs from something else does not arise *de novo*.

Finally, the degree of the "effect typhus" does not vary with the "degree of overcrowding," but rather is in inverse ratio to the germicidal (cleansing) methods adopted to stamp it out.

When the effect is present the alleged cause is not always present; when the alleged cause is present the effect is not always present. *Ergo*, overcrowding is not the cause of typhus, and the question still remains, What is the cause of typhus fever?

The improvement lies in our ability to keep erysipelas and other pathogenic germs from the wounds we make, and we accomplish this even in the presence of overcrowding. The phenomenon overcrowding is present and the effect erysipelas absent. To say that overcrowding produces it is to affirm nothing. The question remains, What is the agent in overcrowding which produces it?

He speaks of Lister's discovery in these terms:

"He filled a big hole in a man's heel with protected blood-clot; he kept out the common or garden germs and that blood-clot got organized and filled up the hole. Of course, it must not be forgotten that all these phenomena were known in domestic science for centuries before, but their surgical importance was not recognized, and certainly Lister's discovery was new in so far that it referred to blood-clot not covered by skin or other living tissue, but directly exposed to air—air altered and deprived of its dangerous elements. Then comes Hamilton, who showed that material actually dead—dead beyond all question—could be so prepared as to adapt itself to the tissue of the feeblest kind, granulation cells, could be used by them as a temporary endoskeletal arrangement and removed by them by the common process of absorption when they were no longer in need of it."

One more quotation, for it bears directly upon his view of the causation of disease: "As I look back at my early experience of surgery my wonder is that I ever stuck to it. In Edinburgh, during my pupilage from 1861 to 1866, I saw some thirty ovarian and other abdominal tumors removed without one single recovery, and I left the land of my birth with one fully made resolution, that I would never open an abdomen. In Edinburgh, if I saw an amputation of the thigh in the Old Infirmary on a Wednesday, there was a strong probability that in the following week I would see the bared bone sticking up through the anterior flap. Erysipelas, indeed, was rampant. I have never seen a case of erysipelas in my own practice, not one. In what lies the improvement? The answer is simple: It

lies in separation of patients; plenty of cubic space and fresh air."

He ends his address in the following characterization of the germ theory: "A theory which is no theory at all, but a phantasm, a system which has been proved an inconstancy and a broken reed—a thing which yields at every blast either to scholastic logic or eclectic experiment."

Before proceeding further let me disclaim any intention of appearing as the champion of the germ theory. I am combating as an individual who has accepted that theory and whose work is governed by it the arguments set forth by Mr. Tait. Applied to our science, the Baconian method demands that we must take a certain germ from a disease and produce the same disease with it in a healthy individual. If the control experiment has accomplished this with but one germ so acquired, the experimental method is applied so far as that one particular germ is concerned. And, although morbid states may be observed in which we have as yet been unable to isolate the identical pathogenic germs which cause them, if the control method is observed with them by taking the morbid product of the diseases and producing identical conditions in other healthy individuals never in contact with those from whom the products were procured, we may justly *infer* that there are unknown germs which bring about the result. And if one by one these inferences regarding different diseases are replaced by the positively demonstrated germ obtained from each disease and isolated and alone producing the same disease in a healthy individual, not only is the case again proved, but the inferences regarding all other diseased states are strengthened.

It is not essential to the proper application of the inductive method that it be possible always to find the germ or that the effect be in proportion to the amount of germ life present. Such a method of reasoning might hold good with the association of inanimate chemical agents, but not with living germs and living tissues. The grosser clinical features of disease upon which Mr. Tait so much relies in his refutation of the germ theory are still more variable. And it would be as reasonable to expect the invariable presence of a typical germ as to seek the invariable presence of any one symptom or ætiological factor, such as overcrowding. To deny the existence of a disease because we can not find that germ which has been isolated at other times from the same condition, admits of our rejecting the presence of a disease whenever a common symptom of it is absent. Variation in bacterial life must be accepted as well as in the phenomena which diseases present.

Take the gonococcus, for instance. Pus taken from the urethra of a gonorrhœic is stained and found to contain the gonococcus. Furthermore, cultures are made of the coccus, and these pure cultures placed upon the healthy urethra have produced a gonorrhœal discharge containing the gonococcus identical with that first obtained and with that bred by cultivation. The *causa causans* of gonorrhœa is thus seen to be the gonococcus. Does it weaken our position to find that pus from a gonorrhœal pyosalpinx is

sterile, or that the gonococcus fails to cause gonorrhœa in B.'s urethra while it succeeds with A.'s? Pathogenic germs, as well as the gross bodies of men, die. That the contents of a pus-tube are sterile simply means that the causative cocci are dead or so modified that our usual methods fail to find them. That B.'s urethra is not inflamed by the presence of the gonococci we believe to be owing to the local tissue resistance; the gonococci die and do not multiply, just as they do under any other unpropitious circumstances. The common clinical fact is doubtless known to Mr. Tait that a number of men will cohabit with an infected prostitute and several escape infection. Their immunity does not prove that those who have clap have not got it, or that the infected woman did not cause it. Accepting Mr. Tait's suggestion to apply the Baconian method, let us enumerate some of the germs to which it has been successfully applied: Anthrax, tuberculosis, glanders, Asiatic cholera. But why multiply examples? Certain it is that the inductive method has been carried out with many of the pyogenic cocci other than the gonococcus. Current literature as well as clinical experience furnishes us with irrefutable evidence regarding many of them.

In what he says about decomposition I do not agree with Mr. Tait, except that it is irrelevant. Then what has all that he says about decomposition to do with the germ theory of disease? That we have in many instances found germs, which isolated germs will cause diseases identical with those from which they were procured, and that the diseases are absent when the germs are absent, is beyond question. In all these diseases we must admit that we do not *invariably* find the particular germs causing them, but we find no other germs constantly present which can cause these diseases. Still, the germ is *always* to be procured in some, and in others it is so constant an accompaniment that the failures to find it may be ascribed to some defect of observation. We have, then, certain diseases in which certain germs are always found and will always produce the diseases in another, such as anthrax. There is another group in which the germ is so constantly present and will so rarely fail to cause the disease that we are forced to accept it as the causative germ of that disease, such as gonorrhœa. In a third class of diseases we have found no typical and constant germ, but in these we can multiply the diseases by subjecting the healthy to material obtained from the sick and applied at some distance—such as the contents of the pustules from variola. Even in this latter class we apply a control experiment in a crude way, but one which meets the requirements of the experimental method. We enjoy for a certain time immunity against certain diseases recently recovered from.

More than this, we can artificially produce in an animal a diseased condition by inoculating it with a certain germ known to cause a certain disease, and thus confer upon the animal immunity from further attacks of this germ. And fluids taken from this immune animal used upon man will prevent his contracting that disease characterized by the presence of those germs which were injected into the animal. The practical result of all this science at which

Mr. Tait scoffs is that we are enabled to take these fluids from the immune animal and by them successfully expel from the human system the identical germs which were originally used upon the animal and which were procured from a human being infected by them."

Were not the "form sought" what we deem it to be, such a result could never be brought about. If the diphtheria germ is found in diphtheria, if with it we inoculate an animal, if with this immune animal's serum we expel from a child's system the diphtheria germs which infect it, surely the case is proved, and by a test far more crucial than that demanded by the Baconian method of reasoning.

Mr. Tait contrasts with his own the ill results of men who are extreme in the use of antiseptics. He challenges Lister to compare results with him, and criticises his clinic for abandoning antiseptic methods "for the adoption of 'aseptic surgery,' the perfect cleanliness which I have been preaching for years."

The few quotations I have made from this paper suffice to show the state of the author's mind. The battles which have been fought in the march from the old empiricism to the modern asepsis furnish him with much material for his scornful argument. In the evolution of our science he finds amusement. The men who have given us our precious facts, proved even by the Baconian method, are to him but misguided or ignorant.

Surgery, unlike astronomy, is not yet a fixed science. As our premises change, so must our conclusions. This but attends all advancement. And, although Joseph Lister's first work is now abandoned, yet must we consider it as the dawn of our new surgery. Lucky indeed will Mr. Tait be if his life's work gains the plaudits of his fellows as Lister's has.

Whereas there may be much in which we have been mistaken, and many our mistakes, certainly the germ theory of disease has been proved beyond a doubt in all the essentials to proper conclusions. We have not discovered the germs of all diseases, but we have found some. The facts discovered in our experiments with these have given us the perfect cleanliness we employ, and have taught us how to treat diseased conditions and at the same time conserve natural forces. Antiseptics we have largely abandoned, not because Mr. Tait told us to do so, but because we have learned the art of protection. I unhesitatingly tell Mr. Tait that the improvement lies not in the separation of patients, but in the making of clean wounds and protecting them from germs and chemical irritants. That we know how to do this is the direct result of the work of Lister. The germ theory of disease has not "proved an inconstancy and a broken reed—a thing which yields at every blast either of scholastic logic or eclectic experiment"; but it is a theory which is logically proved, which gains strength with every fresh experiment, and the very failures of which but prove some law already accepted. The opponents of the germ theory could not have found a bolder, abler, more aggressive champion than Mr. Lawson Tait. Truly has the last great gun against our advance been fired, and burst in the discharge!

ON THE USE OF EXTRACT OF LIVER, GLYCERIN, AND COD-LIVER OIL IN THE TREATMENT OF PHTHISIS PULMONALIS.

By JOHN F. RUSSELL, M.D.,
VISITING PHYSICIAN, COLORED HOME AND HOSPITAL, NEW YORK.

THE following is a report of the use of glycerin extract of liver mixed with cod-liver oil in the treatment of phthisis pulmonalis:

It was believed that extract of liver would aid digestion, particularly of fat, and in that way improve nutrition. Nothing was hoped for other than such results as follow improved nutrition and assimilation. There was no thought of making an impression upon the lung process except such as would flow indirectly from the improvements mentioned. The main object was to increase weight.

Only patients in an advanced stage of the disease were selected.

It is well known that consumptives gain or lose flesh in the most extraordinary way, in any and all stages, under the best or worst surroundings. As a rule, however, these sufferers lose steadily in the last stages. It was therefore thought safest for our purpose to select cases that showed extensive lung lesions.

The object of the experiments, then, was to determine if a glycerin extract of liver mixed with cod-liver oil and given after each meal would improve the nutrition in advanced phthisis pulmonalis; and, if there were gain, to further determine if this result was due to (1) the extract of liver or (2) to the glycerin which the extract contained. No attention was to be given to subjective symptoms, but an accurate record was to be kept of height, weight, temperature, pulse, and amount and character of urine.

The number of cases is too few and the length of time covered too short to make these experiments convincing. The reason for these shortcomings is that in a general hospital it is difficult to gather a large number of cases of the same disease at a given time, and more difficult still if one limits the cases to a certain stage of the disease, as was done in this instance. A further drawback was the necessity for beginning and ending the investigation within a specified time in order to gain proper assistance in collecting and recording facts. I feel that their chief value, if they have value, lies in confirming the known fact that glycerin increases general nutrition and weight. In my experience this power is augmented in phthisis by combining it with oil, not necessarily cod-liver oil.

The extract was prepared in the usual aseptic manner, everything used being thoroughly sterilized. It is not important to describe the process here. The livers were collected at the slaughterhouse from lambs the moment they were killed, and mixed with glycerin within an hour. The glycerin contained ten per cent. of water. After cutting away all fat and fibrous matter the livers were chopped to a fine pulp and mixed in a flask with glycerin in the proportion of grain for drop. This mixture was kept for three days, shaken thoroughly three or four times a day,

then filtered, corked with cotton, and put away in the dark until used. The dose—half a drachm, increased to one drachm—was fixed upon after long experiment as giving the best results. The extract and oil were kept in separate bottles and mixed at the time of administration.

The experiments lasted from June 20th to September 5th, and were divided into three periods:

1. From June 20th to July 10th the patients were given cod-liver oil alone, one drachm three times a day.

2. From July 10th to August 14th the patients were given extract of liver, half a drachm; cod liver oil, one drachm, until August 1st. After August 1st, extract, one drachm; oil, half an ounce.

3. From August 14th to September 5th the patients were given glycerin, half a drachm; cod liver oil, half an ounce.

The weights were taken with great care the same hour of the same days of each week, the patient being naked, the one female excepted. She was allowed to wear a light garment, always the same. Fairbanks' scales were used.

Nine cases, all colored, were selected from the service at the Colored Home and Hospital. Of these, five died before the completion of the experiments. Dr. George A. Tuttle, the pathologist of the hospital, examined the sputa and found tubercle bacilli in large numbers in all the cases.

The following is a list of the cases selected:

Table of Cases Selected.

	Age.	Height, inches.	Weight, pounds.	Normal weight.*		Died.
W.	36	66½	106½	152½	Hydröpnemothorax, left side; infiltration and consolidation, left apex; cavity, right apex.	June 29.
G.	50	61	94½	125	Cavity, each apex.	July 1.
T.	45	60	98	120	Cavity, right apex, anteriorly and posteriorly; infiltration of the whole right lung anteriorly; liver enlarged.	July 18.
S.	21	68	110	160	Consolidation and infiltration, left lung, anteriorly and posteriorly; infiltration of right apex; acute process.	July 21.
Jos. J. .	22	68	103	160	Cavity, each apex; lungs infiltrated throughout except lower right lobe; laryngitis; chronic diarrhoea and chronic peritonitis.	Aug. 14.
B.	19	63	132½	136	Cavity, left apex; infiltration of upper lobe of left.	
D.	43	63½	132½	137½	Cavity, right apex; infiltration of left apex.	
J. H. J. .	29	63	96½	135	Cavity, each apex; infiltration throughout right; laryngitis.	
E. W. ...	42	60	100	120	Severe old pleurisy over left apex; creaks and fine râles; consolidation at right apex; heart hypertrophied.	

* Normal weight has been estimated as follows, viz.: one hundred and twenty pounds for sixty inches, five pounds for each additional inch.

This table shows the really desperate character of the cases.

But four cases remain from which to draw conclusions. Of these four two deserve special mention—viz., E. W. and J. H. J. E. W., female, entered the hospital the year before with a croupous pneumonia involving the right lower lobe, complicated by a pleurisy of the same side. From this she recovered.

Six months later she developed a pleurisy on the left side, which began in the mammary and neighboring axillary regions and, gradually ascending, embraced the whole upper part of the lung. From this she never recovered, but steadily declined until tubercle bacilli appeared in the sputum and the lung showed unmistakable signs of involvement.

J. H. J. had, in addition to his extensive lung lesion, a tubercular laryngitis.

The special feature of these two cases was the distressing cough, which made their nights hideous from loss of sleep and tiresome efforts.

Such complications, the severe pleurisy and the laryngitis, by provoking intractable cough and interfering with rest and the retention of food, it is fair to assume, made these patients less likely to gain. In fact, their small loss, under the circumstances, may imply greater gain than the increase of the two others.

E. W. was given codeine to relieve cough. The others received no medicine except extract of liver, glycerin, and oil.

The diet at the Colored Home and Hospital is the ordinary almshouse diet—no roast meats and few green vegetables. Nothing different was given the patients here considered. They received what they and all the other patients in the institution had always received and nothing more.

The tables of weights for the three periods are here given:

Table of Weights from June 20th to July 10th. Cod-liver Oil alone.

	June 20.	June 26.	June 30.	July 3.	July 7.	July 10.	Average weight.
E. W. ....	....	100	98½	100½	99½	97½	99·20
D.	132½	130½	131½	130½	131½	130½	131·08
B.	132½	129½	128	132½	131½	132½	131·04
J. H. J.	96½	92½	92½	91	89½	90½	92·06

Table of Weights from July 14th to Aug. 14th. Extract of Liver and Cod-liver Oil.

	July 14.	July 17.	July 21.	July 24.	July 27.	July 31.	Aug. 3.	Aug. 7.	Aug. 11.	Aug. 14.	Average weight.
E. W.	98½	100½	97½	97½	....	98½	100½	100½	99	97½	98·82
D.	130½	131½	131½	132½	132½	132½	133½	133½	134½	133½	132·74
B.	131½	130½	131½	131½	131½	130½	132½	131½	132½	132½	131·50
J. H. J.	91½	90	90½	90½	91½	90	90½	87½	89	90½	90·16

Table of Weights from Aug. 18th to Sept. 4th. Glycerin and Cod-liver Oil.

	Aug. 18.	Aug. 21.	Aug. 25.	Aug. 28.	Sept. 1.	Sept. 4.	Average weight.
E. W.	100½	98½	97½	97	98	101½	98·77
D.	133½	134½	135	135	135½	136	134·94
B.	133½	132½	134½	135½	135½	134½	134·52
J. H. J.	88½	87	88½	88½	88½	87½	88·06

Table showing Average Weights for the Three Periods.

	First period, June 20th to July 10th, cod-liver oil alone.	Second period, July 14th to Aug. 14th, cod-liver oil and glycerin extract of liver.	Third period, Aug. 18th to Sept. 4th, cod-liver oil and glycerin.
E. W.	99·20	98·82	98·77
D.	131·08	132·74	134·94
B.	131·04	131·50	134·52
J. H. J.	92·06	90·16	88·06

The charts showing temperature, pulse, daily quantity of urine, and the specific gravity are next given.

cloud of albumin or a cast now and then, nothing abnormal found. Neither albumin, sugar, nor kidney elements were present constantly.

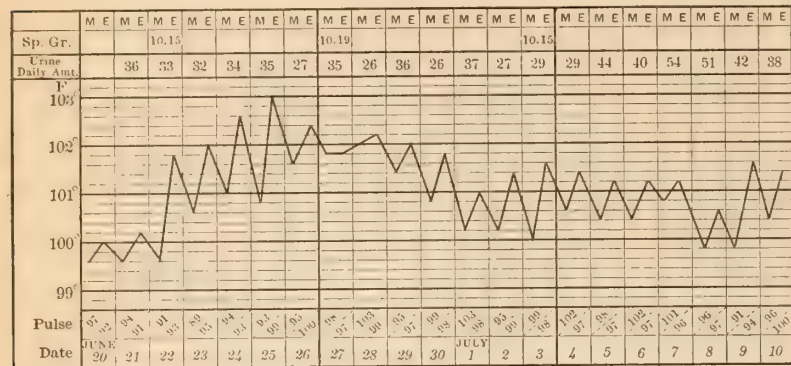


Chart showing temperature, pulse, daily quantity of urine, and specific gravity.
First period.

These charts are composite. That is, they are the liver is only valuable from the glycerin therein contained. The latter may throw some light upon the im-

cloud of albumin or a cast now and then, nothing abnormal found. Neither albumin, sugar, nor kidney elements were present constantly.

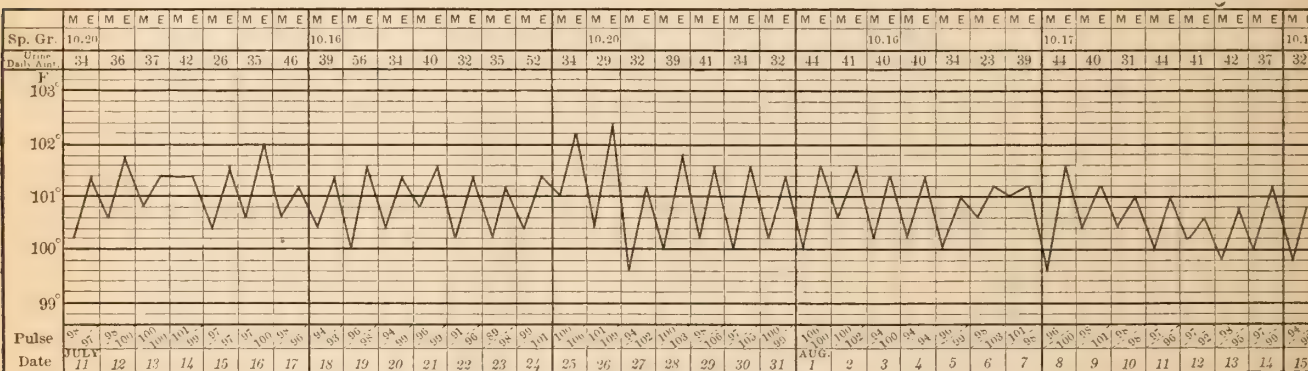


Chart showing temperature, pulse, daily quantity of urine, and specific gravity. Second period.

taken in the rectum at the same hour, twelve hours apart, proved nutrition noticed in patients who take the various animal extracts.

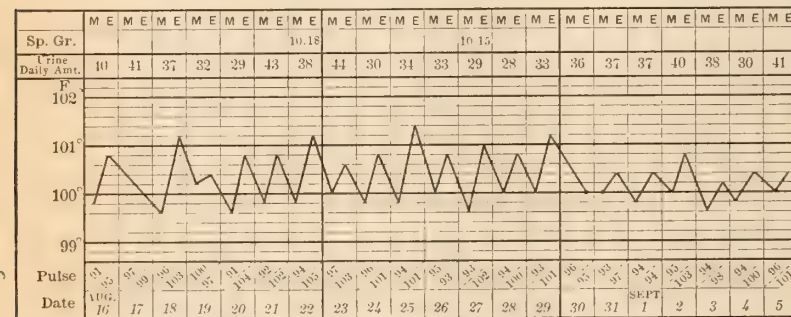


Chart showing temperature, pulse, daily quantity of urine, and specific gravity.
Third period.

It will be seen that the temperature is worst during the first period, better during the second, and best in the third. It is possible that the sudden withdrawal of the cough mixtures, all of which contained opium in some form, may have caused, from the increase of cough, the peculiar rise noticed in the first few days. The chart for the third period shows a striking improvement and suggests an explanation of the gain in weight.

The urine of each patient was examined chemically and microscopically once a week and, excepting an occasional

As has before been intimated, in my experience glycerin alone, without oil, fails to increase weight in this disease.

It is but just to add that these experiments were the outcome of, and the results confirm, a much larger experience—an experience that unfortunately can not be given in this paper because from lack of assistance the facts observed were not recorded.

NOTE, November 26, 1894.—J. H. J. and B. died in September, the former from exhaustion, the latter from the sudden rupture of a cavity into the pleural sac. D. weighs 141½ pounds; E. W. weighs 101½ pounds.

21 WEST ELEVENTH STREET.

A Preparation said to be Worthless.—Dr. D. A. Mac-tavish, of West Bay City, Mich., writes that many of the physicians of Bay City have tried a preparation called "Chyde's solution for making cloth splints," and found it worthless; hence they wish to warn the medical profession in general to be on their guard against the vendor.

The Paris Academy of Medicine.—Dr. Lucas-Champion-nière has been elected a member of the academy.

THE DIFFERENTIAL DIAGNOSIS OF TRAUMATIC INTRACRANIAL LESIONS.

By CHARLES PHELPS, M. D.,

SURGEON TO BELLEVUE AND ST. VINCENT'S HOSPITALS;
CONSULTING SURGEON TO GOUVERNEUR HOSPITAL.

(Continued from page 745.)

GENERAL DIAGNOSIS.

BEFORE attempting to isolate the several forms of encephalic injury, I shall recur to two points in their general diagnosis which have been, at least provisionally, established by the analysis of my first series of cases. I refer to the pathognomonic value of temperature in the symptomatology of head injuries as a class, and to the recognition of cranial fracture. I shall not enter at length into the reconsideration of either subject, since the relation between symptoms and demonstrated lesions previously determined is found to still subsist, and the more recent observations have but confirmed the opinions the study of the elder series seemed to warrant. The additional cases have in fact not only substantiated but strengthened the propositions which I formulated in the original instance; this will be sufficiently evident by a simple reference to their histories as presented. I shall consider more specifically only the two points in general diagnosis which I have designated.

PRIMARY SUBNORMAL TEMPERATURE.

In all the cases of the first series but two the temperature was elevated at the time of first observation. In the present series, which, like the first, includes recovering as well as fatal cases, the instances of primary subnormal temperature have chanced to be more numerous, but in all which survived primary shock subsequent elevation of temperature was equally noted.

In more than seventy-five per cent. of the forty or more cases of the later series in which the earliest known temperature was subnormal, the patient still suffered from evident shock or alcoholic intoxication. It is not inconceivable or improbable that in them a characteristic symptom of shock or of alcoholic poison should have taken precedence of others produced by traumatism. In the cases remaining, where no other suggestion of shock or of alcoholism is to be derived from the examination of symptoms, the solution of the problem is probably the same. Premising that the earliest manifestations of injury—those exhibited before admission—are most difficult to learn, it may well happen that depression of temperature, often the last lingering indication of shock, is all that remains when the first record of the case comes to be made. Three of the residual cases were complicated by severe external injury; in many others there was free intracranial hæmorrhage, as determined in the majority by necropsic examination, and in the others by the escape of blood during life from ear, nose, or mouth. In one case, in which there was no external hæmorrhage, the general conditions indicated its existence within the cranial cavity. In all these instances the occurrence of undiscovered or unnoted shock is not only the rational but more than probable explanation of an otherwise inexplicable early depression of temperature;

but whatever may be thought of these exceptional and temporary early conditions, all such cases very soon fall into line and conform to what seems to be an established law—that elevation of temperature is the unfailing manifestation of traumatic lesions within the cranium.

The character of the pulse and respiration in the exceptional instances in which subnormal temperature was observed has not been usually suggestive of general shock; in a few cases the one was notably frequent or the other markedly accelerated; in general there was little if any variation from the normal standard. This requires for explanation but another application of the suggested law of precedence in symptomatology; it may happen that the pulse and respiration reflect for a time the general condition of shock, but it is more frequently the temperature alone which in the presence of intracranial injury is dominated by the original impression made upon the sympathetic nervous system. In all cases, if the patient survives a certain very limited period, temperature, pulse, and respiration, like all other symptoms, are dependent upon the special injury which has been suffered, and this is ordinarily the fact at the earliest opportunity afforded for examination. It is sufficient to indicate this law of preference without attempting to fathom the conditions upon which it rests.

I have previously insisted in this relation of temperature to general diagnosis upon the importance of distinguishing alcoholic coma from cerebral trauma. I have no less strenuously asserted the facility, the almost absolute certainty, with which this can be accomplished. I believe the elevation of temperature in the one, and its depression in the other, have been so thoroughly established as to demonstrate the sufficiency of temperature alone, without the existence of external injury or positive general symptoms, in almost any case in which question may arise. It is fortunate that the occasional early depressions of temperature in intracranial injury are likely to be associated with such general conditions as have little room for doubt in diagnosis. I have no reason to revert to a subject so simple in itself, except in the interest of humanity and in protest of the shocking abuses which still persist in this regard in the accident service of the city. Negligence or incompetence still figures in the early history of too many of the serious cranial and intracranial injuries which have at a later period come under my observation. There may be a fair presumption that a man found unconscious in the street, or delirious in a police station, is simply drunk and devoid of surgical interest, but it is not so absolutely overwhelming as to warrant neglect of ordinary physical examination; and when a patient with fractured skull and lacerated brain, whether or not in alcoholic condition, has been given admission, it is not creditable to hospital administration that he should be detained in alcoholic wards, transferred to an asylum for the insane, or sent into the street to die almost within the shadow of its walls, even in exceptional instances. It must be in some part due to a defect in professional teaching when hospital assistants display such ignorance or indifference in the discharge of professional duty. It is well, therefore, for observers who are

not public teachers to assume an office, and to direct attention to such default if for nobetter purpose than to avert public scandal.

FRACTURES OF THE CRANIUM.

The diagnosis of fractured skull is not difficult if the case be subjected to sufficiently careful examination. This is evident in some degree from anatomical considerations, and is illustrated in my first series of cases. Fractures of the vertex can always be discovered by tactile or visual sense, since incision is without danger or subsequent inconvenience to the patient, when doubt exists which it seems important to resolve. Fractures of the base in a large proportion of cases traverse some part of the bone which permits the escape of blood from the ear, nose, or mouth, or into the subconjunctival or subcutaneous cellular tissue. In fifty per cent. of the eighty-seven necropsies in both series in which fracture of the base existed there had been some form of external hæmorrhage during life; in more than seventy-five per cent. of the seventy-eight cases which recovered, or in which necropsy was impracticable, there had also been some characteristic hæmorrhage, so that in 62.5 per cent. of the total number diagnosis could be made largely from this single symptom. Two of the remaining sixty cases presented an equally characteristic serous discharge, and many others had been recognized by tracing fissures from the vertex downward into the base in the course of operation. There are left scarcely more than twenty cases in which this fracture was unknown till disclosed at necropsy, and of these, several were brought under observation only after the lapse of one or more days—too late to ascertain whether or not hæmorrhage, usually a transient symptom, had occurred. In this residuum of cases the fracture very frequently extended into the middle or posterior fossa without reaching the petrous portion, and sometimes into that bone without involving any part of the auditory passages; fracture through the anterior or middle fossa in some instances failed to so implicate the ethmoid or sphenoid as to establish communication with the nose or mouth; in the anterior fossa the thin orbital bones were occasionally fissured without causing either orbital or ocular hæmorrhage, visible or concealed. Yet, with all these possibilities of failure of recognition as a symptom, its absence altogether, its lack of means of exit, the neglect of its early observance, external hæmorrhage was noted in nearly four out of five of the whole large number of cases which I have recorded.

I do not think there is the serious difficulty which has been suggested in determining whether such hæmorrhage is the result of fracture. The local examination of ear, nose, or mouth is sufficient to eliminate the most probable source of error. Contusions of the face in the ophthalmic region may sometimes make orbital or ocular hæmorrhage of doubtful significance, and habitual epistaxis has once led me to hesitate in the interpretation of a nasal hæmorrhage; but it is usually possible in such instances to give this symptom its proper clinical value. I believe it may be regarded as practically pathognomonic. I have only once found a hæmorrhage from the ear to result from a wound of the external meatus.

An occasional escape of brain substance through a cranial fracture requires no consideration. The more frequent instance of injury of a cranial nerve from a fracture passing through its bony canal may be diagnostic if it be practicable to fairly determine that functional disturbance or abeyance does not depend upon lesion within the intracranial cavity. I have recorded in the first series an instance of facial paralysis which was found upon necropsy to have been occasioned by fracture and hæmorrhage into the aquæductus Fallopii, and I have had reason in more recent recovering cases to refer the same symptom to similar osseous lesion. It is well known that fracture through an anterior fossa often involves the optic foramen. I have recorded the history of three cases, in which the patient survived, where the optic nerve was thus implicated and suffered subsequent atrophy with immediate and permanent loss of vision. Dr. P. A. Callan has reported nine cases. I have no doubt, therefore, that valuable diagnostic information may be afforded by nerve disturbance mechanically produced.

There remains a symptom which I believe to point to fracture, and to which I have previously adverted, in the existence of acute localized pain at the seat of injury. I have since observed it in a number of cases in which this lesion seemed otherwise probable; these often resulted in recovery, and, as the indications of intracranial complication were slight, the symptom was unobscured. I quote an illustrative case which occurred in my service at St. Vincent's Hospital:

A young woman fell from a third-story window to the pavement below and was admitted at once, delirious, with hæmatoma of the left frontal region extending over the eye, and with slight subconjunctival hæmorrhage. She had epistaxis, which was repeated the next day, and from which she said she had previously suffered; no fracture was discovered by incision; severe frontal headache, confined to the site of the hæmatoma, continued for three days; the mind was clear; the wound of incision healed at once; the temperature on admission was 101.4°, rose gradually to 103° on the third day, and then declined to 99° on the ninth day; the pulse on admission was 68, and on the sixth day 120.

The degree and course of temperature in this case indicated injury of the brain, and while neither the epistaxis nor the ocular hæmorrhage could be positively attributed to fracture, the severity of the blow, amount of local injury, and coexistence of brain lesion, gave to my mind a certain diagnostic importance to a severe localized pain which was certainly not characteristic of simple contusion. I shall have occasion to detail in another connection some fatal cases in which the value of this symptom was incidentally verified.

The symptoms usually ascribed to fracture—as loss of consciousness, pupillary change, and others—are really those of encephalic complication, and have only a possible indirect relation to cranial injury.

In assuming that fractures are themselves unimportant, except for their complications, immediate or remote, I have not depreciated the importance of their diagnosis. Fractures of the vault induce complications, which are relieved

only after recognition and treatment of the fracture itself. Laceration of the brain, wounds of the sinuses, hæmorrhages, and later psychical disorders caused by fragments of bone depressed, can be treated only after detection of the primary lesion. Basic fractures are less likely to require or admit direct interference; but their appreciation is still of moment. The knowledge that fracture exists may greatly help to confirm the diagnosis of a deeper seated injury, and greater certainty in regard to the existence and nature of morbid conditions can not fail to increase the possibilities of successful treatment. The curative management of intracranial lesions is still so far unsettled that aid from any quarter, in giving it firmer basis, is far from unimportant.

DIFFERENTIAL DIAGNOSIS.

When the transition is made from general to special diagnosis, and beyond the simple recognition of fracture to the differentiation of intracranial injuries, difficulties increase, and these, I have found, are to be encountered and surmounted, if at all, with little aid from other than personal observations. The literature of the subject, aside from the contributions of Prescott Hewitt and von Bergmann, is singularly unsatisfactory, and the most recent surgical writers even are hopelessly confused in their descriptions of these obscurer forms of injury. There has been no lack of tabulated collections of cases, but they have been disjointed and heterogeneous, incomplete in historical detail, and barren of result for any purpose of useful generalization. They have presented a jumble of symptoms, lesions, and pathic relations, at once perplexing and discouraging. I limit criticism to methods of culture which have obtained in the field of traumatism, and have no intent to disparage the work which has been done in other departments of neuro pathology.

I have no hesitation in ascribing this want of precision primarily to an erroneous conception of the structural alterations which such traumatisms produce, and to a consequent failure to either accurately define the resultant morbid conditions or to systematize the symptoms which they present. Following an imperfect apprehension of the nature and effects of structural lesions, intracranial injuries have been considered largely in the light of theoretical preconceptions. Mistaken views of both pathology and symptomatology, strengthened by time and tradition, have retained acceptance, or have been formally discarded, only to be again practically rehabilitated. Recognition is still given to a hypothetical disorder which is without pathological foundation; symptoms are still grouped under a single comprehensive designation, which result from varied pathogenic conditions, and which present as many points of contrast as of similitude; fact has been subordinated to fancy in order to establish antitheses which are inaccurate in every particular; a comprehensive inflammation of the entire cranial contents has been assumed which has no basis of truth. Concussion, compression, and encephalitis are terms which still hold a place in the vocabulary of surgical literature. I have heretofore considered the subject of concussion, and shall recur to compression and encephalitis hereafter.

In a previous paper, of which this is a continuation, and to which I am so often compelled to refer, I detailed the traumatic lesions which were revealed in a considerable number of necropsic examinations, and made them the basis of classification of the morbid conditions which they had occasioned. In an even larger number of necropsies observed since that time parallel conditions have been found to exist. As each form of lesion is attended by characteristic symptoms, and as no evidence is adduced that symptoms occur independent of anatomical alteration, it is logical and, I think, essential to recognize groups of symptoms under the name of their pathogenic lesion. The attempt to classify traumatic or other diseases by their outward manifestations is arbitrary, misleading, unphilosophical, and contrary to what has come to be accepted as the true principle of nosography. It is beyond my province to insist upon the proper basis of nosology, which has been so learnedly demonstrated and so felicitously formulated by my distinguished colleague, Dr. J. W. S. Gouley.*

These lesions, reaffirmed in brief, are: (1) Intracranial hæmorrhages from injury of the bone, brain, or membranes; (2) arachnitis, from injury of the arachnoid membrane and pia mater; (3) lacerations and contusions of the brain substance; to which may be added (4) pyogenic parenchymatous inflammation.

I omit reference to disorganizing injuries in which the brain and its membranes are alike involved; they are patent and have no relation to classification. There is another lesion—thrombosis of the dural sinuses, which I have been unable to connect with symptoms.

The prevalence of errors in pathology and of faulty generalizations in symptomatology, together with the inherent force which they derive from prescription, may be reckoned extrinsic causes of diagnostic uncertainty. Some of the sources of confusion and failure which I indicated in a previous study of head injuries may be regarded as intrinsic. In the second class the multiplication of lesions in the same case and the apparent identity of symptoms from dissimilar causes may be counted as most efficient. I believe the "Ariadnean thread" should be sought in the study of those cases in which the lesion is either simple or in which one out of many is primary and of paramount importance. The clew once gained, it ought to be possible to follow it through the more complicated cases.

I. HÆMORRHAGE.

Traumatic intracranial hæmorrhages are usually classified as (1) epidural, (2) subdural, and (3) cortical or pial. This is hardly accurate or complete, though not absolutely objectionable. No exception can be taken to the term epidural as denominative of an extravasation between the bone and the dura mater, for it is anatomically correct. The use of the word subdural is less felicitous, since the effusion is into the arachnoid cavity and not between the dura and the parietal arachnoid. Hæmorrhages, again, which occur between the visceral arachnoid and the brain are better subdivided so

* *Diseases of Man—Nomenclature, Classification, and Genesis.* Dr. John W. S. Gouley, Surgeon to Bellevue Hospital, New York, 1888

as to imply cause as well as location. A more accurate classification of hæmorrhages, if made purely in accordance with location, would be: (1) Epidural, (2) arachnoid, (3) subarachnoid; but as the arachnoid variety is merely an accidental extension of any subarachnoid hæmorrhage, and as the subarachnoid is of composite origin, a better, and I believe the best possible, subdivision is into (1) epidural, (2) pial, (3) cortical.

The matter of nomenclature is of absolute importance, since pathological exactness is essential to correct diagnosis, and a change of established form, always to be deprecated, becomes in this instance a logical necessity.

I at one time believed epidural hæmorrhage to invariably result from cranial fracture. I have more recently seen three cases in which it was occasioned by contusion from *contrecoup*. Its source may be either in the diploe or in the osseo-dural vascular connection. Pial hæmorrhage is caused by contusion of the pia mater and consequent rupture of its vessels, while cortical hæmorrhage, though occupying the same anatomical position in the subarachnoid spaces, is derived from laceration of the brain surface. These three hæmorrhages are always primary; arachnoid hæmorrhage, as I have stated, is always secondary. It is in most cases a cortical hæmorrhage which breaks through the pia and visceral arachnoid; a pial hæmorrhage from contusion is not often in sufficient amount to rupture the arachnoid membrane, though an occasional instance will be found in the histories which I have presented. That blood from the osseo-dural vessels may reach the arachnoid cavity when the injury at the same time involves both bone and dura is evident, but that no epidural hæmorrhage in itself has power to rend the dura seems equally certain; the fibrous structure resists while the brain substance is compressed and displaced, even though blood is effused in enormous and fatal quantity.

Intracerebral hæmorrhage is the result of subcortical laceration, or rather a part of it, and therefore not a distinctive lesion.

The differential diagnosis of hæmorrhage is of special importance, since of all the intracranial lesions it most frequently admits of operative interference. Its origin and location are no less important as constituting a second factor in determining the propriety of operation.

A casual examination of the cases which I have recorded will demonstrate the exceeding frequency of hæmorrhage in all forms of intracranial injury. In nearly sixty per cent. it has occurred in sufficient quantity and in such relation as to largely influence the final result, and to become a more or less determinate factor in the genesis of symptoms. In one third of this percentage it has been the direct and probably the sole cause of a fatal termination. It is doubtful, however, if it is ever an isolated lesion. In a very large proportion of the whole number it was secondary to laceration, and while this was in itself often insignificant, the hæmorrhage was none the less profuse and the source of both symptoms and danger. In the residue of cases, though it was primary, it was not unexpectedly associated with other structural alterations. The same violence which is sufficient to separate the dura from the

bone, or to rupture the vessels of the pia mater, can hardly fail to be transmitted to the brain, and its effect either concentrated in a local laceration by *contrecoup* or diffused in a general contusion of its substance. A hæmorrhage is often regarded as uncomplicated from want of sufficiently careful necropsic inspection of the brain throughout its whole extent. There may be no laceration or other obvious local injury, and general contusion is readily overlooked.

I have but once observed in necropsy a hæmorrhage where the associated cerebral contusion seemed so slight as to be unimportant. There are twenty or more cases, however, in which hæmorrhage was the essential lesion, and which, perhaps, afford sufficient ground for inductive examination. There is probably a larger number than I shall analyze, but it is impossible to rate them with even approximate precision. They include nine epidural hæmorrhages and eleven of pial or cortical origin, of which five had reached the arachnoid cavity. If to these are added eight cases which were subjected to trephination, and in which the existence and location of hæmorrhage was thus verified by operation, and in which no considerable depression of bone or other evident complicating lesion existed, the total number will be increased to twenty-eight. One of the operative cases disclosed both epidural and arachnoid hæmorrhage, and terminated in death; the others were all of epidural character, and resulted in recovery.

The symptoms observed were not numerous, and of these temperature, when considered with proper regard to its surrounding conditions, was of greatest diagnostic significance. In seven of the necropsic cases it was unrecorded; in seven of those remaining it was on admission subnormal; in five it was 99° to $99^{\circ}+$; and in one, which also involved slight contusion of the corpus striatum, it was 101° . In those cases, three in number, in which it subsequently exceeded 101° , there were notable coexistent lesions of the brain substance; one presented extensive lacerations of the base, another extensive general hyperæmia and œdema, and in a third, in which the temperature rose from 94° to 102° in the eight to ten hours which preceded death, there was implication of a supposed heat center. In the operative cases the highest temperature was 101.6° , and in the only one in which it exceeded that degree it reached 102° after the formation of a fungus cerebri. I have already attributed the early subnormal temperature to shock, and, when the patient has survived this condition, I have seen that the temperature has been restored with the general reaction. In each case in which subsequent elevation exceeded $101^{\circ}+$ there has been marked general contusion or other concomitant injury of the parenchyma of the brain. In these twenty-eight cases, therefore, best fitted for observation, the temperature characteristic of hæmorrhage has been found to range from above normal to $101^{\circ}+$.

The one constant symptom in fatal cases was some degree of unconsciousness. In the majority it was profound, or at least complete, from the moment of injury to the end of life. In four others consciousness was primarily lost, and, after more or less complete restoration, was merged in final coma. In three instances consciousness was

retained for some length of time, during which the patient walked for a considerable distance, and then either gradually or suddenly became unconscious. In another case of late unconsciousness delirium followed, and continued till death occurred. In a final instance unconsciousness was primary, but, as in the case just mentioned, delirium followed hard upon it without a period of conscious intelligence. In the operative cases in which recovery ensued, and in which it is fair to assume that the effusion was smaller, loss of consciousness was less constant, occurring in but half their number. In two the mental condition remained unaffected, and in one unconsciousness was replaced by delirium; in three cases in which it was a symptom, it was very transitory in two, and in one but moderately prolonged.

The varying phases of unconsciousness, the diverse symptomatic conditions with which it is associated, and the uncertain period of its occurrence, render it impossible to accept the traditional explanation of its existence, that it is solely dependent upon a mechanical compression of the subjacent brain substance. It is probable that as a primary symptom—as an instantaneous result of injury—it is due to general contusion, which is itself an instantaneous lesion. It has been seen in the larger number of the fatal cases collated that it has been absolutely the first symptom, not only at the time of admission, but as learned at the scene of accident and noted in the ambulance history. The effusion of a sufficient amount of blood to act mechanically requires an appreciable interval. This is evident in two of the cases of rupture of the *arteria meningea media*, in which some hours elapsed before the patient became unconscious, and in which the epidural clot was found to be of enormous size. There may or may not be a restoration of the intellectual faculties between the earlier and the later lapses of consciousness. The general cerebral contusion may be so severe that the unconsciousness which it produces will continue till the effusion has become sufficient to occasion the same condition as a direct result, and one is lost in the other. It is also possible that the central lesion may be insufficient to annul consciousness for the time necessary to the effusion of blood in sufficient quantity to act as an immediate stupefying agent. This opinion as to the manner in which loss of consciousness occurs in intracranial lesions will be strengthened by the wider comparison of cases to be made, in which hæmorrhage was a contributive rather than an essential lesion, and in the direct study of other forms of injury.

Much importance has been attached to disturbance of the pupils in traumatic hæmorrhage. The cases under present consideration in most instances show some change in the pupillary condition. It has been unnoted in two of those which were fatal and in three of those which were subjected to operation; it has been normal in but three out of the remaining twenty-three. The pupils in the cases of abnormality have afforded almost every possible combination of dilatation with contraction. In six both pupils were dilated, the hæmorrhage being in three epidural, in two pío-arachnoid, and in one epidural and pío-arachnoid combined. In four both pupils were contracted, the hæ-

orrhage being in one epidural, in one pial, in one both epidural and arachnoid, and in one both epidural and cortical. In two the pupil was dilated on the side of injury and contracted on the opposite side, the hæmorrhage in each being epidural; in two the pupil was contracted on the side of injury and dilated on the opposite side, the hæmorrhage in each being epidural and derived from the middle meningeal artery; in three the pupil was dilated on the side of injury and normal on the opposite side, the hæmorrhage in each being epidural; in three the pupil was normal on the side of injury and dilated on the opposite side, the hæmorrhage being cortical in two and epidural in one. There was no instance of contracted pupil on either side without change in its fellow. In the three cases in which both pupils remained normal the hæmorrhage was epidural in one, pial in another, and cortical in the third. The hæmorrhages occurred upon every part of the cerebral and cerebellar surfaces, vertex, and base.

There seems to be no change in the pupils, Hutchinsonian or otherwise, which is positively characteristic. In two thirds of the cases analyzed the hæmorrhage was wholly or in part epidural, and in two thirds of these again one pupil or both was dilated; but as in the aggregate all sorts of pupillary changes resulted from all sorts of hæmorrhages, their observation can be scarcely more than confirmatory of an opinion justified by the collation of other symptoms. Their condition as to mobility was scarcely more to the purpose; in the far greater number, whatever the origin, location, or amount of hæmorrhage might be, they were freely movable.

The pulse was unnoted in three cases; it was normal in four, in two of which the hæmorrhage was epidural, covering the convex surface of a hemisphere, and in two was of subarachnoid origin, occupying the inferior occipital fossæ. In the larger number of cases it was frequent, and the hæmorrhage, usually large, was of either variety and variously situated. In six cases in which the pulse was slow, the hæmorrhage was in each instance epidural, and the patient profoundly unconscious, and in four the respiration was stertorous. In neither the fatal nor the operative cases was there any definite relation discovered between the character of the pulse and the nature of the hæmorrhage, or between it and the associated symptoms.

There is another pulse condition, a want of symmetry in radial pulsation upon the two sides of the body, which I have found to occur in connection with both hæmorrhages and visceral injuries, and shall give consideration hereafter.

The respiration afforded more definite indications. It was normal in but a single instance. It was increased in frequency in two cases moderately, and very markedly or excessively in six others, the hæmorrhage having occurred with a single exception upon the convex surface of the brain. In nine cases the respiration was stertorous, and in seven of them the hæmorrhage, which was epidural in six, not only covered, but compressed the cerebral surface upon the side of injury or occupied the anterior fossæ; in the other two it was rapid, accompanied by cyanosis and pulmonary œdema, and the hæmorrhage covered the pons and to some extent the medulla. None of the operative recov-

ering cases presented any noticeable deviations from normal respiration.

The disturbance or abrogation of muscular function was an occasional symptom, and was exhibited in accordance with established laws of cerebral localization. Paralysis occurred in three of the fatal cases and in two of those which recovered after operation; it was hemiplegic in four and paraplegic in one. Muscular rigidity, affecting one side or both, occurred in five cases, and general convulsions in one which was fatal. In each case some part of a motor area was covered by the hæmorrhage, which was indifferently epidural, cortical, or pial, and acted as a paralyzing or irritant lesion according to its extent and situation. These motor disturbances, while of great positive diagnostic importance, are so frequently absent that they have no corresponding negative value.

In a single case there was protrusion of both eyes as well as dilatation of both pupils. There was found an epidural clot in the right inferior occipital fossa and an arachnoid hæmorrhage which covered both frontal, and the parietal lobes as far as the fissure of Rolando.

Sensory disturbances were still more infrequent. Delirium was noted in three cases: in one which recovered it was primary, and the hæmorrhage, as disclosed by the trephine, was epidural and in trivial amount; in two fatal cases it was of later occurrence, followed a previous condition of unconsciousness, and was associated, in one with a pial hæmorrhage over the right hemisphere and inferior surface of both occipital lobes, and in the other with a cortical hæmorrhage covering the pons; in both general contusion was well marked. Partial anæsthesia, irritability, and restlessness were observed in isolated cases.

In order to further test the diagnostic value of the symptoms observed in this limited number of cases, I have analyzed thirty-four others in which, though the associated lesions were more severe, the hæmorrhage was sufficiently large, absolutely or relatively, to be a probable source of distinguishable symptoms. They present some points of difference which naturally followed from different attendant conditions. In the larger proportion of both necropsic and operative cases, in which hæmorrhage seemed to be the single source of danger, it was of epidural origin. In the present group of cases, in which the brain and its membranes are more seriously involved, it is with few exceptions essentially pial or cortical. When these parts are the seat of excessive general contusion without laceration, the pial vessels are naturally the ones most likely to suffer rupture, and in fact in every such instance the hæmorrhage, if subdural, was of this character; in two it chanced to be epidural. When the brain substance is superficially wounded, the cortical vessels are obviously most likely to be the source of hæmorrhage. It is also inevitable that when life is prolonged the symptoms of hæmorrhage should be often modified, superseded, or complicated, by others characteristic of the additional lesions.

The temperature loses its diagnostic importance. It is generally higher than in the previous instances where hæmorrhage was less complicated. In ten cases it ranged from 105° to 107.8° , and in twenty-six it was above 103° . In

the cases which terminated fatally within twenty-four hours, which was the limit of life ascribed solely to hæmorrhage, the temperature, as in them, did not usually exceed $101^{\circ}+$; in four, however, in which death occurred within even less than twelve hours, it rose to 102.2° , 106.8° , 107.8° , and 103° . Subnormal temperatures on admission were infrequent.

Consciousness in these cases, as was noted in those subjected to operation, was less uniformly lost than when death seemed to result directly from hæmorrhage, yet in far the larger number its loss was primary, complete, and permanent. In some it was at first partial, but progressive, and eventually complete; in others primary unconsciousness merged in delirium; in a few instances consciousness was at first retained, only to be lost at a later period. In general, the results of this examination are confirmatory of those obtained from the study of the less complicated cases.

The pupillary condition was less diversified than in the cases previously detailed. It was normal in about the same proportion of those in which record was made. There was much more frequent dilatation of both pupils—more than twofold; an equal number in which both were contracted, and consequently fewer instances in which the two presented opposite conditions. As before, there was no case in which one pupil was contracted without change in its fellow. When both pupils were abnormal the hæmorrhage was usually bilateral; and in unilateral dilatation the hæmorrhage was usually upon the corresponding side; but in neither instance was the rule invariable. In the two cases of normal pupils the hæmorrhage, which was large in each, was epidural in one and pial in the other, and in each was associated with important change in the brain substance.

The pulse when registered was, perhaps, under the influence of opposing forces, usually normal. It was occasionally slow or unduly frequent, but oftener exhibited that want of symmetry in force and fullness upon the two sides which I have mentioned as occurring in different forms of intracranial injury.

The respiration was unnoted in a third of the cases, and in many of these, which were among my earlier observations, it was doubtless unaffected, since at that time normal conditions were unrecorded. If moderate allowance be made for such omissions, the proportion of mixed cases in which its frequency was from 18 to 24 in the minute, and in which it was without special characteristics, was from one third to one half, while in those in which hæmorrhage was more nearly an isolated lesion it was of normal character in but a single instance. It was stertorous in about the same proportion of cases as in the former class, so that those remaining, in which it was abnormally slow or frequent, are necessarily few.

The muscular system again not infrequently afforded symptomatic indications. In each instance in which an irregular excitation of functional activity was manifested by either clonic or tetanic contraction the hæmorrhage was complicated by cerebral or cerebellar laceration. In others, in which muscular power was lost or held in abeyance, the complicating lesion was invariably general contusion. Clonic

contractions were relatively frequent; general convulsions, while but once observed in the class of comparatively pure hæmorrhages, and then as merely localized convulsive movements, occurred in six of the mixed cases. General muscular rigidity in the two classes occurred with more nearly equal frequency. These facts are suggestive of the influences exerted by different lesions.

Since, in the group of cases under consideration, the hæmorrhage is in each instance associated with some serious injury of the immediate seat of sensory and intellectual function, symptoms which depend upon disturbance rather than upon simple oppression of the nerve centers are to be regarded here as only indirect. Delirium, irritability, or restlessness, when of immediate occurrence, and the effusion of blood is moderate in amount, may be considered symptoms of hæmorrhage, but only in the sense that a pleuritic pain is counted a symptom of pneumonia. It is unnecessary, therefore, where direct brain injury is a recognized factor, to investigate such conditions while engaged in the study of uncomplicated hæmorrhages.

There are two symptoms which have been often held to be diagnostic of intracranial hæmorrhage: these are loss of consciousness following cranial injury after some appreciable interval, and dilatation of the pupil. This view is not well sustained by the statistical facts which I have collated. Reference to either group of cases will disclose comparatively few instances in which consciousness was lost in the manner indicated. Some change in the pupillary condition was found to occur in most of them, but it was varied in character and not to be regarded as typical in any one of its forms. Various other symptomatic manifestations have been suggested as indicative of this particular lesion. Some of them, like the dilated and insensible pupil, occur often enough to afford corroboration of an opinion founded upon other evidence; others which are possible, but, in fact, infrequent, are given an exaggerated diagnostic importance; and others still, when they chance to exist, have no relation to hæmorrhage. The absolute value to be attached to these refuted pathognomonic symptoms can be only determined by a reference to the results of actual observations in such an extended series of cases as I have in this instance collected.

(To be continued.)

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending December 15, 1894:*

PIGOTT, M. R., Passed Assistant Surgeon. Detached from the Chelsea Hospital and ordered to the Mare Island Hospital.

EVANS, S. G., Passed Assistant Surgeon. Detached from the Mare Island Hospital and ordered to the U. S. Steamer Pinta.

Marine-Hospital Service.—*Official List of the Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the Fifteen Days ending December 15, 1894:*

STONER, G. W., Surgeon. Granted leave of absence for twenty-two days. December 10, 1894.

ROSENAU, M. J., Passed Assistant Surgeon. To report at bureau for special temporary duty. December 10, 1894.

THE USE OF METALLIC ELECTRODES IN THE TREATMENT OF NASAL AND POST-NASAL DISEASE.*

By CLARENCE C. RICE, M. D.

To employ the galvanic electric current to decompose a metal, to form a new salt, and to transfuse this salt into animal tissues, all by a simultaneous action, for therapeutic reasons, it must be admitted is a remarkable scientific procedure, whether the benefit obtained thereby be great or small. The use of the constant current with an *oxidizable* metallic electrode does all of this. It is pre-eminently the Gautier method, he having devised it and given to it the name of "interstitial electrolysis" or "medicamental electrolysis."

Dr. William J. Morton, of New York, who first called my attention, more than a year ago, to the usefulness of the application of such electrodes as those made of copper, zinc, and iron to the mucous surfaces, has given to this electrical procedure the names of "electric medicamental diffusion" and "metallic electrolysis," which seem to me better titles.

In the short paper which I shall present to this association, as I am in no sense an electrician, I shall be obliged to quote largely for my scientific data from the writings of Gautier,† from information very kindly given me by Dr. W. J. Morton, and also from the most admirable paper on Metallic Electrolysis read by Margaret A. Cleaves, M. D.,‡ of New York, at the third annual meeting of the American Electro-therapeutic Association.

This Gautier method consists simply in using a solid metal electrode for the positive pole, which is to be applied to the part to be treated, while the negative pole is the ordinary rubber covered sponge electrode, three or four inches square, applied to any portion of the body, preferably to the back of the neck or to a location somewhat near the part to be treated by the copper end. The application of this method is comparatively recent, Dr. Gautier having brought it into therapeutic use within the past three years.

Dr. Cleaves gives this definition of "metallic electrolysis," that it is "a method which makes use of the chemic action of the positive pole, both upon foreign substances—that is, metals, such as copper, zinc, and iron—and the tissues at the same time."

Gautier experimented with the copper electrode for the purpose of ascertaining what the effect of the electrical current was upon the copper electrode—that is, what change was effected in it by the passage of the current, and also what the effect was upon the tissues to which the copper was applied. He first discovered that in using two copper needles, with a current of five milliampères, inserted into the muscles of a rabbit's leg, after an application of

* Read before the American Laryngological Association at its sixteenth annual congress.

† *Technique d'électrothérapie*. Gautier et Larat, p. 169.

‡ Cleaves. Metallic Electrolysis. *Jour. of the Amer. Med. Assoc.*, January 20, 1894.

ten minutes these needles were perceptibly diminished in weight and the copper thus lost was found to be infused in the muscles of the rabbit. His next experiments were performed to see what the nature of this newly formed copper salt was, and whether it was poisonous to the living tissues. He ascertained that the salt was an oxychloride of copper, and that it produced no harmful results when a two-per-cent. solution was injected into rabbits.

Dr. Cleaves in her paper explains the electrical action which takes place in this way: "So far as conductivity is concerned, the human body may be regarded as a two per-cent. solution of sodium chloride. By electrolysis of the tissues in contact with the positive pole there are always set free oxygen, acids, and chlorine; these, in turn, attack the soluble metallic electrode, whether sound or needle, and we have formed as a result an oxychloride of copper, zinc, or iron, as the case may be."

It may be doubted whether the benefit of the application of oxidizable metallic electrodes to the nasal and pharyngeal mucous membrane depends in any sense upon any germicidal effect of the copper or of the current, but Gautier carefully tested the effect of the positive pole upon the *Bacillus pyogenes*, and he found that the oxychloride of copper at the positive pole destroyed the pus bacillus after fifteen minutes' application of a forty-milliampère current. The influence exerted by non-oxidizable electrodes by the Apostoli method was much less.

In addition to the electrolytic action of the current, whereby an oxychloride of copper is formed, we are told that another action, scientifically designated as the cataphoric property, is of equal importance in this method of electrical application. This cataphoric property causes the surrounding tissues to become impregnated with the copper salt for a distance around the needle depending upon the intensity of the current and the duration of its application.

The following experiments at Dr. Morton's office have been effected: A copper needle attached to the positive pole was inserted into a piece of meat or hard-boiled egg, the negative pole being a platinum needle. They found that by using a current of forty milliampères for five minutes the copper salt was transfused through the meat or egg for the distance of a third of an inch around the copper needle.

The physiological action of the copper electrode is more easily studied upon the uterine cavity than in the nose or throat or upon the eye. It has been found that the diffusion of the copper salt in the uterine mucous membrane, submucous and muscular tissues first causes a temporary congestion of marked degree, and I understand that it is not uncommon to apply a current of such strength that there is more or less exfoliation of the mucous membrane; but I have never seen this occur in applications to the nose and throat.

This Gautier application differs quite markedly from the "galvano-caustic" method bearing the name of Apostoli. This latter method is, as you all know, electrolytic in its action. It has always been the custom in this procedure to use non-oxidizable electrodes, such as platinum, etc., or, if oxidizable electrodes have been employed, such as

copper wire or nickel-plated copper points, they have been used at the negative pole, which is inactive—that is, not affecting the electrode. Dr. Morton tells me, however, that it has recently been discovered that there is action at the negative pole on aluminum. In the Apostoli method the tissues only are acted upon and separated into their original elements—at the positive pole acids, chlorine, and oxygen, and at the negative, alkalies and hydrogen.

As you will all remember, Dr. Shurley,* of this association, read a paper in 1880 upon the treatment of pharyngitis sicca by the use of the galvanic current. He applied the positive pole to the mucous surfaces, but I do not find any mention as to what kind of an electrode he employed. If it was the ordinary nickel-plated copper, then there would have been decomposition of this electrode, first the nickel and then the copper, and they would have been transfused into the tissues, which is practically the Gautier method.

Dr. Delavan,† in 1887, read a paper on The Treatment of Atrophic Rhinitis by the Application of the Galvanic Current. He employed the copper-wire electrode covered with wet absorbent cotton; but this was at the negative pole, so that the action was exerted on the tissues alone, and the character of the electrode was not significant. If the positive pole had been used the cotton would have prevented the diffusion of the copper into the tissues.

The application of the galvanic current by the Apostoli method to mucous membranes must always be considered as either astringent or caustic in its effect, according to the intensity of the current. In the Apostoli method the energy of the current is used in its decomposing action upon the tissues; in the Gautier it is exhausted in the decomposition of the metallic electrode and in its transfusion into the tissues.

Dr. Morton, who has made careful experiments in order to ascertain the difference in effect between the use of the galvano-caustic method with the platinum electrode and that of the copper electrode, as applied to the uterine mucous membrane, reports that with a current strength of fifty milliampères with a platinum electrode the mucous membrane was very much congested and the positive pole was surrounded by dilated blood-vessels which did not contract in a satisfactory manner. With a copper electrode and with the same strength of current and length of application there were no traces of destruction of tissues or surrounding inflammation.

Dr. Cleaves writes that the Apostoli or galvano-caustic method is characterized by unoxidizable electrodes, high intensity, and short duration of application, and the Gautier method by oxidizable electrodes, low intensities, and long sittings.

It is maintained that the advantages of the Gautier method of applying such astringents as copper and zinc over the topical application of such metals in solution are that in electrolysis the copper can be carried accurately to the

* Shurley. On Atrophic Pharyngitis. *Transactions of the American Laryngological Association*, 1880.

† Delavan. The Treatment of Atrophic Rhinitis by Applications of the Galvanic Current. *Transactions of the American Laryngological Association*, 1887.

most obscure and inaccessible part; second, that salts in this newly born state are much more active than in chemical combination; third, that as pathological conditions usually lie deeply under the mucous membrane, they can be reached by the impregnation of the tissues with the copper salt far better than when it is simply applied to the mucous surface; and fourth, benefit is claimed for the action of the electric current itself.

I believe that Dr. A. H. Goelet, of New York, devised the first copper electrodes used in this country for uterine work. Dr. Morton has had shorter ones made, which are preferable to the longer ones for nasal and post-nasal application. These copper electrodes can be tipped at the end with hard rubber to make the point inactive, and they can be insulated for nearly their entire length with a sheath, or they can be entirely insulated on one side with hard rubber, as Dr. Cleaves has done with the small, ingenious copper electrodes which have been used by her and others in the treatment of trachoma. The needles employed in what Dr. Morton styles cupric puncture were devised by him.

In gynecological work we are told that a current strength of from twenty-five to fifty milliamperes may be used, and the length of a sitting should be about fifteen minutes. Of course the current is accurately measured by its passage through a milliamperemeter. In the uterine cavity, where this intensity is used, and where it is difficult to keep the electrode in motion, it is apt to become fastened to the mucous membrane, and it becomes necessary to loosen this by a reversal of the poles, using a current of five or ten milliamperes. I have never found this necessary in the nose or pharynx, not, as a rule, using more than five milliamperes, and being able to keep the copper electrode moving. In uterine work they are accustomed to make these applications not oftener than three or four times a month. In most nasal cases I have used the Gautier method twice a week.

Something more than a year ago Dr. Morton called my attention to the usefulness of this application to nasal and throat disorders. He had at that time, I believe, used it in a few cases in his private practice, and upon a larger number at his clinic. His results have not yet been published, but he tells me they are satisfactory.

I began the use of metallic electrolysis in that line of cases of nasal disorder in which no marked hypertrophy was present, either of the *sæptum* or turbinates, or in which hypertrophy had been removed by operation, and where that annoying symptom, supersecretion, remained. You all know that there are many cases of nasal disease in which supersecretion is pretty satisfactorily checked by the removal of nasal obstruction. Unfortunately, there are many others in which, though the breathing is improved by operation, the uncomfortable symptom of hawking and clearing the throat to remove collections of mucus is not greatly abated. I commenced using the copper electrode with the hope of diminishing the abnormal amount of secretion in these cases.

The Gautier method did not seem to me to be a rational substitute for operative work in the removal of

either soft, cartilaginous, or bony enlargements, although Dr. Morton and Dr. Cleaves have, I believe, used it with more or less satisfaction in cases of nasal stenosis.

In the eleven clinical cases reported in Dr. Cleaves's paper, four were applications made for uterine disease, three in cases of trachoma, and four for nasal and throat trouble.

In her first nose and throat case the prominent symptoms seem to have been an irritating cough and a disposition to swallow almost constantly. She simply says that six applications were made and that all the symptoms disappeared. Exactly what the pathological condition was we do not know.

The next case was in a child of nine years of age having a muco-purulent discharge, with nasal and pharyngeal obstruction. Fourteen applications were made, and the abnormal symptoms disappeared. We are not told what the condition was here, but it would look as though it were adenoid enlargement at the vault of the pharynx.

We should not recommend the metallic electric treatment in the removal of adenoid, since it can be taken away so expeditiously by the usual methods.

I do not propose to give a detailed history of any of the many cases in which I have applied the copper electrode during the past year. Some of them have presented quite marked improvement. I have been able to check an irritable cough due to pharyngeal or laryngeal catarrh by two or three applications; but it has seemed to me that this was accomplished rather by the galvanism than by the effect of the copper. I have used the cupric puncture with Dr. Morton's needles in cases of enlarged follicles on the posterior wall of the pharynx, and have satisfactorily reduced them in size. It is a slower process than the use of the actual cautery, and perhaps is no better.

As I have said before, my nasal cases which have been selected for this treatment have usually been those in which the two symptoms were catching cold easily and frequently, and the presence of an annoying amount of mucus in the nose and pharynx. These cases I have treated about twice a week, and have not often used a stronger current than five milliamperes, as, in going beyond this strength, the patient complains of pain and dizziness in the head unless cocaine is employed, and it seems to me wiser not to use cocaine, in order to obtain the benefit of the patients' sensations.

I have treated my cases twice each week, and in the following manner: First, the mucous membrane is thoroughly cleansed by an alkaline wash, then the large negative sponge electrode is placed on the back of the neck and the small nasal copper point is rubbed thoroughly both along the *sæptum* and on the turbinated side, and so through the nasal channels into the vault.

Patients complain of burning and stinging in the anterior nares with a current of five milliamperes, which is increased to a pain in the upper teeth if it is made stronger. A salt taste in the mouth, thickened tongue, and a general sensation of 'an electrical current in' the head are the other symptoms. When the electrode is applied to the posterior end of the nasal chambers there is a slight feeling of dizzi-

ness with five milliampères, which is very uncomfortable with eight or ten milliampères. This is in addition to the local burning and pain. Flashes of light before the eyes are sometimes noticed by patients. Directly following the nasal applications we find the mucous membrane congested, the turbinates swollen, and the transudation of serum abundant—the symptoms of an acute coryza, which last for two or three hours and have disappeared by the next day.

I have succeeded in decidedly diminishing the amount of nasal and post-nasal secretion in perhaps six cases out of twenty, and have lessened it somewhat in seventy-five per cent. of all the cases. It is difficult to give this method of treatment a thoroughly fair trial, because one is apt to use watery or oily sprays without intending to do so, and some credit should be given to them.

I have the history of three nasal cases, in all of which the prominent symptom was epistaxis and the usual ulcerations at the anterior end of the cartilaginous septum were present. The application of the copper sound to these healed them within two weeks, and there was no return of the bleeding. I should say that the diffusion of copper in this line of cases was preferable to its application in solution.

I have succeeded in diminishing the size of anterior turbinated swellings with the cupric puncture. The appearance of such hypertrophies is quickly changed by the injection of the copper salt. I think the copper needle will prove of value here, and it is a better agent than the caustic acids, which have been too liberally daubed over the turbinates during the past ten years. Localized congestions at the vault of the pharynx, when there is little enlargement, are diminished by the application of the broad copper electrode introduced through the mouth.

I have not tried to reduce nasal obstructions on the septum, or post-nasal enlargements, by the copper method. The cupric puncture may be found to be useful in enlarged tonsils, but will hardly supplant the tonsillotome or galvano-cautery point. Its use would seem to be more reasonably indicated in the reduction of enlarged lingual adenoid.

Finally, I believe that if it is found that the use of the copper electrode by the Gautier method is a valuable therapeutic agent in the treatment of catarrhs of the upper air-passages, it will be in that line of cases where, after all obstructions and hypertrophies have been removed, there still remains an annoying amount of secretion to be checked.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from December 9 to December 15, 1894:*

BREWER, MADISON M., First Lieutenant and Assistant Surgeon, upon the expiration of his present leave of absence will be relieved from duty at Fort Riley, Kansas, and will report for duty at Fort Keogh, Montana.

FLAGG, CHARLES E. B., First Lieutenant and Assistant Surgeon, now on duty at Angel Island, California, will report in person at Fort Townsend, Washington, for temporary duty at that post.

FRICK, EUGEN B., Captain and Assistant Surgeon, is granted leave of absence for four months.

SWIFT, EUGENE L., Captain and Assistant Surgeon. The leave of absence granted him is further extended two months.

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EXPERIMENTAL MEDICINE IN PHILADELPHIA.

It is with very great regret and not a little surprise that we have heard of the action recently taken by the Board of Charities and Correction of Philadelphia by which Dr. Judson Daland failed of re-election as a member of the staff of visiting physicians of the Philadelphia Hospital. Dr. Daland is favorably known to the profession, largely by reason of his being the editor of a very meritorious serial publication entitled *International Clinics*, and those who know him will be astonished to learn of his being dropped from the hospital. For a member of a hospital staff to fail of annual re-election, except in accordance with his own wishes, is so unusual as to give rise, when it does occur, to the impression that some notable indiscretion has been committed by the individual, or else that he has been found incompetent to perform the duties pertaining to his office. The reason given out in this instance amounts to a charge that Dr. Daland "experimented" on the patients. Now, we all know what "experimenting" means to the ordinary layman—something monstrous, bordering on cruelty. The particular form of "experimenting" alleged in this instance was that of holding back the curative treatment of malarial disease by means of quinine in certain instances, in order that the blood might be examined with reference to the *Plasmodium malarie* under circumstances that, it was thought, would aid in obtaining further knowledge than we now possess of that organism and its pathogenic properties. That is to say, a hospital physician is practically punished because he seeks to promote medical knowledge, and thereby the health and happiness of the human race, with such a minimum of discomfort to a few sick persons as that of allowing them to have one or two more chills.

Dr. Horatio C. Wood, of Philadelphia, is reported as having made very vigorous comments on the board's action, viewing it not only as unjustifiably injurious to Dr. Daland, but also as tending powerfully to discourage experimental work in the hospital.

"Medicine," said Dr. Wood, "is an experimental science, and can only grow by experiments, and the experiment which is based upon rational groundwork and is carried out with care and does not endanger human life or health, is not only justifiable, but imperative. It was for spending his time, without hope of any personal reward, in such labor and in such a way as must lead to results that the board removed Dr. Daland, and in such a removal struck a great blow to the medical interests of the city and of the world." Everything that Dr. Wood is here quoted as having said is true and

appropriate beyond all question. We assure Dr. Daland of our sympathy, and we believe that he will receive that of the entire medical profession. There is nothing to be said against Dr. Daland's successor, Dr. Hobart Amory Hare, but there is this much to be said in condolence, that he enters upon an office under circumstances which threaten to handicap him as a progressive student of experimental medicine, in which he has already distinguished himself. It is to be hoped that hospital boards in general will not be inclined to follow the retrogressive example set them by the Philadelphia Board of Charities and Correction.

MINOR PARAGRAPHS.

THE GERMAN MEDICAL SOCIETY OF THE CITY OF NEW YORK.

ON a recent occasion, that of an anniversary festival held by the *Deutsche medicinische Gesellschaft der Stadt New York*, a few native American physicians had an opportunity of getting a little insight into the depth of German hospitality and of listening to some very cordial and interesting speeches. It may not be inappropriate to make special mention of Dr. Jacobi's speech, an abstract of which we print elsewhere in this number of the *Journal*. Dr. Jacobi has lived in New York for many years and he knows its people thoroughly; moreover, nobody ever doubted his sincerity. That he should have been able in a rapidly spoken response to a toast to mention so many and such notable matters as standing to the credit of the medical profession in a country that has yet had but little more than a single century of independent existence is exceedingly gratifying. The German physicians who live in the United States—and by German physicians we mean those who are German by birth, by descent, by education, or by affinity—are a welcome addition to the American medical profession. They are practically all here to stay, they have cast their lot with us, they respect and like us the more the longer they have been here, and we heartily reciprocate.

THE DIPHTHERIA SERUM THERAPY.

It seems that Professor Behring's particular method of antitoxine treatment is meeting with some lively opposition in Germany. At a meeting of the *Berliner medicinische Gesellschaft* held on November 28th Dr. Hansemann made remarks, the report of which fills nearly four columns of the *Deutsche Medizinal-Zeitung*, in which he denied the curative power of the serum, its prophylactic action, and its freedom from danger. He denied also that true diphtheria, the diphtheria of Bretonneau, depended on the Löffler bacillus.

A NEW PHASE OF NEWSPAPER MEDICINE.

THE *New York Times*, thinking that busy physicians have not time to read "the voluminous discussions of medical journals," has gone into the business of supplying them with "current news and discussion of the serum treatment." In a supplement it begins this mission with a reproduction of one of its editorials, preceded by a translation of some remarks by Dr. Louis Martin, reported in the *Bulletin médical*. The few inaccuracies of this translation, such as "green methyle," will at least amuse the *Times's* medical readers.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending December 18, 1894:

DISEASES.	Week ending Dec. 11.		Week ending Dec. 18.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	14	7	16	3
Scarlet fever.....	91	10	111	7
Cerebro-spinal meningitis....	2	2	4	4
Measles.....	63	8	62	1
Diphtheria.....	232	45	200	41
Small pox.....	7	1	2	0
Tuberculosis.....	157	120	83	103

A Complimentary View of American Medicine.—At the recent anniversary festival of the *Deutsche medicinische Gesellschaft der Stadt New York*, on Saturday evening, the 15th inst. Dr. Jacobi responded to the toast of *die amerikanischen Collegen*, and said that he proposed to speak of the American physicians as scientists, as practitioners, as citizens of the country and members of the profession, and as colleagues. The first two were practically one, inasmuch as the two could hardly be distinguished in a science which was eminently practical. He referred to S. Bellingham, who left Harvard College in 1642 to complete his studies in Leyden; to Cadwallader, who, in 1751, delivered his first systematic course of lectures in Philadelphia; to the first Philadelphian who was made bachelor of medicine, in 1768; and to the first New York doctor of medicine, made one in 1770. During and since this time American medicine had developed in connection with the English for the same natural reasons that, in Europe, the northern part of Switzerland developed its medicine on the basis of German medicine and the western part on that of France, and that of Russia on the basis of German and French medicine. American physicians were never slow in learning from and emulating Great Britain. In the year 1796, when Jenner introduced his vaccination, Waterhouse followed him in Cambridge and Jackson in Boston. But American medicine was never simply imitative. The speaker referred to the still classical essays of Bard on diphtheria; to the medical inquiries of Rush, who, at the same time, was a statesman and one of the signers of the Declaration of Independence and an intimate personal friend of George Washington; to the classical essays of William Currie on the diseases most prevalent in the United States, published in 1811; to McDowell's first ovariectomies in 1809; to David Hosack's essays; to the great work of Drake, who, at a later period, 1850-'52, published his two famous volumes on the infectious diseases of the Mississippi Valley. He also referred to Jackson, who, in 1832, proclaimed prolonged expiration at the apices of the lungs as one of the symptoms of incipient tuberculosis, a symptom which was adopted by Louis and his disciples; to Fisher, of Boston, who was the first to explain the cranial murmur of rachitis; to Gerard, of Philadelphia, who was the first to distinguish between typhus and typhoid fever; to Carr, who was the first to explain the cause and the nature of the crepitation in the beginning of pneumonia; to Oliver Wendell Holmes, who, nearly twenty years before Semmelweis, proclaimed the contagious nature of puerperal fever; to anæsthesia as discovered by Morton and Jackson; to Horace Green, who, the first laryngological specialist of the world, was the first to make the larynx accessible; to Bowditch, who, first in 1852, and later in a paper read before the New York Academy of Medicine in 1870, preached the gospel of operations for empyema; to Valentine Mott, for

his immortal operations on arteries; to Marion Sims, for his inventive genius and new operative methods; to Cheever, who was the first to operate on the pharynx from the side of the neck; to Weir Mitchell, for his works on injuries of the nerves and for many other great achievements; to Bigelow, for his operations on the bladder; to Beard, whose name had become a household word in both hemispheres in connection with neurasthenia. Dr. Jacobi also referred to such monographs as were strictly scientific, like those of Horace E. Wood on fever; to those of Weir Mitchell on snake poisons; to Fitz's original work on the pancreas; to Minot's book on embryology, and to the many valuable original papers contained in the cyclopædias of Pepper, Keating, Starr, and Keen and White. He also emphasized the fact that there was no specialty that had not had its great representatives among the American practitioners and scientists of the last twenty or thirty years. He mentioned particularly La Roche, Alonzo Clark, Flint, Da Costa, Osler, Mott, and Willard Parker, who was the first, together with Hays, of Philadelphia, to perform tenotomies after the manner of Dieffenbach, even before the arrival of Detmold in this country. He mentioned many names in connection with the other specialties, particularly those of Stillé and of Wood and Bache for pharmacology; that of Leidy for anatomy; and those of Billings and Fletcher in connection with the greatest lexicographical enterprise of our times, and perhaps of all times, the *Index Catalogue of the Library of the Surgeon-General's Office* in Washington.

In order to prove the presence of education and culture among a number of the American medical men, he again referred to Holmes; to Josiah Nott, who in his time was one of the most learned Egyptologists; to Weir Mitchell, who, while being a recognized authority on neurology, was known as a poet and historical writer; and to John Watson, who had been both a good surgeon and a good medical historian.

The speaker added that the spirit of American medicine, like that of Anglo-Saxon medicine in general, was decidedly objective. It had enjoyed a healthy development from the very beginning and had never swerved, as it had, for instance, in Germany, where for the first forty years of this century it had been lost in mysticism and so-called natural philosophy. During all this time American medical life had had one great blemish, which was that the profession had, by its fighting and ostracizing the German fad of homœopathy, instilled more vigor into the medical sects than was perceptible in any other country.

The speaker then alluded to American physicians as members of their own profession, and laid particular stress on the fact that we had no protective organization due to the State or to the general Government; that whatever improvement there was had been due to the exertions of the profession alone; that the American principle of "help yourself" was always visible in the doings and progress of the profession. This self-protection had been the cause of the origin of the code of ethics, which enforced a discipline that was not known in Europe, and excluded advertising in general and the announcement of a specialty in particular, which were not at all forbidden in the professions of Europe. It was the same spirit of self-protection, however, or rather the spirit of increased moral strength, which, finally, in the State of New York, had led to the abrogation of the very same code of ethics as no longer necessary. It was due to the efforts of the profession in nearly all the States and to a number of the members of the profession themselves that a certain minimum of preliminary knowledge had at last been recognized as an absolute requirement for the study of medicine. It was also the result of the exertions of the profession, and not of the medical schools, that the courses of

medical instruction had finally been lengthened and multiplied, and the principle of State examinations adopted. The absence of State protection and State organizations had led, in the American profession, to the establishment of large co-operative societies, State societies, the American Medical Association, and the Congress of American Physicians and Surgeons. It was this spirit of co-operation which had led to the flourishing condition of medical societies in New York, and particularly to that of the New York Academy of Medicine, which had had its own large building years before the brilliant profession of Berlin owned its Langenbeck House.

Finally, the speaker referred to the American profession as colleagues. He said that there was no country on the globe where strangers would be received with the same generosity and liberality as here. Every one of those present knew that there were no obstacles thrown in their way by the profession; on the contrary, very many of them had met with a friendly reception, enjoyed all sorts of privileges, had occupied and were occupying public places, were often recognized as leaders, and had every reason to be glad for having come to a country where the medical profession, after having had a glorious past, had still a greater future in store.

Society Meetings for the Coming Week:

MONDAY, *December 24th*: Medical Society of the County of New York; Boston Society for Medical Improvement; Lawrence, Mass., Medical Club (private); Cambridge, Mass., Society for Medical Improvement; Baltimore Clinical Association.

WEDNESDAY, *December 26th*: New York Academy of Medicine (Section in Laryngology and Rhinology); New York Pathological Society; New York Surgical Society; American Microscopical Society of the City of New York; Metropolitan Medical Society, New York (private); Medical Society of the County of Albany, N. Y.; Philadelphia County Medical Society.

THURSDAY, *December 27th*: New York Academy of Medicine (Section in Obstetrics and Gynecology); New York Orthopædic Society; Brooklyn Pathological Society; Roxbury, Mass., Society for Medical Improvement (private); Pathological Society of Philadelphia.

FRIDAY, *December 28th*: New York Society of German Physicians; New York Clinical Society (private); Yorkville Medical Association, New York (private); Philadelphia Clinical Society; Philadelphia Laryngological Society.

Births, Marriages, and Deaths.

Married.

LESZYNSKY—CALM.—In New York, on Wednesday, December 12th, Dr. William M. Leszynsky and Miss Adèle Calm.

Died.

ATHENS.—In Lake Charles, La., on Friday, November 30th, Dr. P. C. Athens, aged thirty-two years.

JEWETT.—In Fitchburg, Mass., on Sunday, December 16th, Dr. George Jewett, aged sixty-nine years.

PINKHAM.—In Montclair, N. J., on Friday, December 7th, Dr. John Warren Pinkham.

RANNEY.—In New York, on Friday, December 14th, Dr. Martin L. Ranney, in the sixty-fifth year of his age.

Letters to the Editor.

MALTOSE VERSUS GLUCOSE.

BROOKLYN, December 15, 1894.

To the Editor of the New York Medical Journal:

SIR: In your issue of the 8th inst., Dr. D. E. Keefe takes me to task for what he deems some errors in my paper of November 3d upon Maltose *versus* Glucose. The doctor is certainly very liberal to himself in the interpretation he has put upon my words. It may be that I failed to fully elucidate my meaning at the point he has seen fit to attack, but certainly I never intended to say the thing he charges me with. It is impossible for an author to enter into the minute details of all his ideas. If he tried to, he would bury them in a fog of words. Perhaps I was too brief at the point cited and took too much for granted as to the ability of others to grasp an inadequately expressed idea. Grant that this is so, then the irony of fate has struck the doctor a severe broadside in return. He has written me a courteous note stating that a slip of the type made him mangle the quotation he intended to make from my article. As a slip of the type placed him in an unfavorable light by the brevity it imposed, so a slip of judgment on my part as to how far I should have entered into minute details has placed me in a similarly unfavorable light in the eyes of Dr. Keefe. Surely the doctor can not think that I did not know that the gastric juice could digest gluten. What young student of physiological chemistry does not know that there is no such thing as a distinct layer of starch covering the gluten of bread in the sense in which he accuses me of believing that it does?

Can the doctor not see that even his meat, eggs, casein, etc., are buried in starch in the sense of my paper, and that insoluble substances hinder the solution of soluble ones? Will it be necessary to point out the fact to him that this difficulty, slight at first, rapidly becomes worse and worse the more the pepsin acts? Can he not see an advantage in alternating modes of digestion such as Nature has given us, or does he think that all digesting could have been accomplished just as well at any single place, such as the stomach? With the mass of outside starch dissolved from around our food by the ptyalin, can the doctor not see that this clears the way for better work for the pepsin? When again the work of the pepsin is stayed by undigested starch, is it not well to turn it over to the amylase, etc.? The old proverb that the last straw breaks the camel's back should be studied by Dr. Keefe. Anything that hinders normal digestion, if only for ten minutes, must contribute to ten minutes of abnormal fermentation, and if this does not lead to disease perhaps the doctor will tell us why. The doctor thinks I need instruction in the elements of physiology, and so he quotes Dalton. Let him try to view the subject from the standpoint of my paper as a whole, and he may perceive that if either of us needs to be instructed in matters of such simplicity perhaps I may not be the one. Physiological chemistry has advanced so far that it now has volumes devoted to itself. Let Dr. Keefe quote Gamgee or Foster's latest on this particular branch of physiology, and then we shall the quicker understand each other. I do not think that digestion could not be accomplished without ptyalin. It could, but with no such perfection as with it. Three engines can pull a heavy train better than two, and two better than one. My contention, to which the doctor objects, is just such a one as this. He holds that two engines are as good as three, and I deny it. I have no objection to his saying a good word for pancreatic juice, even though he calls it pancreatine, but desire he should not impair the scientific value of a letter otherwise good. I wish him to be first correct, then consistent.

ROBERT G. ECCLES.

Proceedings of Societies.

AMERICAN LARYNGOLOGICAL ASSOCIATION.

Sixteenth Annual Congress, held in Washington, D. C., on Wednesday, Thursday, and Friday, May 30 and 31 and June 1, 1894.

The President, Dr. D. BRYSON DELAVAN, of New York, in the Chair.

(Continued from page 694.)

The Use of Metallic Electrodes in the Treatment of Nasal and Post-nasal Disease.—A paper on this subject was read by Dr. CLARENCE C. RICE, of New York. (See page 785.)

Dr. JONATHAN WRIGHT said that stimulated by the papers of Dr. Delavan and Dr. Shurly on the treatment of atrophic rhinitis, he had used the instrument in ten or twelve such cases, and had observed the same symptoms as had been described in the paper—coryza and an excess of watery secretion from the nose. Electricity was not to be relied upon at all, either for cauterization or motor work. In consequence of this he had abandoned its use. He could see no reason why in atrophic rhinitis there should be an increase in the secretion of watery fluid, or why in hypertrophic rhinitis there should be a diminution in quantity.

Dr. DE ROALDES, of New Orleans, said he had listened with great interest to Dr. Rice's paper, and regarded it as a commendable step in the direction of the application of electricity to our specialty. He was glad to see the method of interstitial electrolysis, with the production of medicinal agents in the nascent state, as devised several years ago by Dr. Gautier, of Paris, undergo new tests on this side of the Atlantic with new and improved electrodes. The good results obtained were, however, in his opinion, due as much to the beneficial effects of the galvanic current as to the action of the nascent oxychloride of copper.

The penetration of the tissues by this agent was undeniable. The unipolar method was used; he thought, however, it would be preferable to resort to the bipolar method.

In regard to the amperage used in these applications, now that electricity was being more generally used in the nose and post-nasal space, he would like to remind the fellows of the importance, in comparing notes, of experimenting with reliable galvanometers of a uniformly standardized type.

Dr. MOURE, of Bordeaux, two years ago, at a meeting of the Société française de laryngologie, had been astonished at the intensities of eighty and ninety milliamperes used in the nose by Dr. Garrigou-Desarènes, of Paris, while twenty to thirty milliamperes was the maximum he had been able to reach consistently with the safety and comfort of the patient. He was disposed to explain these differences of intensities by the varieties of milliamperemeters used in the registration of the current. Dr. Garrigou-Desarènes added in explanation that such high intensities (ninety milliamperes) had been reached in patients of Northern origin, like Russians and Poles, thus seeming to lay great stress on racial resistance. Dr. de Roaldes said further that his experience on this point had left quite an impression on him.

The Eye, Ear, Nose, and Throat Hospital, of New Orleans, was provided with a special and very complete electrical room, which had been thoroughly fitted under the able supervision of one of his assistants, Dr. William Sheppergrell; the galvanic current was so distributed as to allow of the treatment of three patients at the same time. The three different seats were sup-

plied with rheostats and milliamperemeters of different makers. Six months ago he had determined to make use of electrolysis, with tolerably high intensities, in a case of recurrent fibrosarcoma of the post-nasal space. The intensities, as endured by the patient, were so variable from day to day that, overlooking the question of resistance of the parts, the reliability of the instrument was at once suspected. One day the three different milliamperemeters registered so wide apart that they were tested with a standardized Weston instrument and found to register from thirty to fifty per cent. too high.

Since that he had adopted in his private office the last-named milliamperemeter, which, while costly, was certainly the most trustworthy instrument in the market. He thought that much greater accuracy of observation would be obtained in our electrical applications if the intensity of the current used was registered by thoroughly reliable and properly standardized milliamperemeters, and also if the resistance of the parts, by means of a simple and practical device, could be readily calculated by the operator.

Dr. JOHN O. ROE, of Rochester, said: I have had considerable experience in the use of the galvanic current, especially in the treatment of atrophic rhinitis. The electrodes that I have employed have been either nickeled electrodes or a flattened copper wire wound with cotton saturated with a saline solution before being introduced; and the beneficial results I have attributed solely to stimulation of nutrition. The employment of copper electrodes, such as those described by Dr. Rice, I have had no experience with, but shall certainly give them a trial, and hope to have as excellent results from their use as those obtained by him.

One word in regard to the employment of the milliamperemeter for indicating the strength of current that should be prescribed in different cases. In the first place, my experience accords with that of Dr. de Roaldes that, as a rule, milliamperemeters are more or less unreliable in indicating accurately the strength of the current; and secondly, that the strength of the current employed in the treatment of one patient is no indication of the amount that should be employed in the treatment of another patient. This is owing to the variation of the internal resistance of the body, not only of different persons, but of the same persons at different times. The same strength of current that one patient will take with perfect comfort may be exceedingly painful or unendurable by another patient. I regard, therefore, the sensation of the patient as a much more reliable guide for indicating the strength of the current to be applied in each particular case than the employment of the milliamperemeter, which can only be of service for measuring the strength of the current to be employed when the internal resistance of the body has been carefully ascertained.

Dr. WILLIAM H. DALY said he considered the milliamperemeter as comparatively unreliable as our gas and water meters. While electricians had done much, they had not yet reached that point where they could construct a reliable milliamperemeter. The resistance to the electrical current differed, as Dr. Roe had said, in different individuals, and in the same individual on different days, and at different times on the same day.

Dr. CASSELBERRY was skeptical as to any permanent effect being obtained in chronic cases, and attributed the changes to the copper salt rather than to the electrical action.

Dr. RICE said that it remained to be proved how much benefit was to be credited to the diffusion of the copper. In Dr. Delavan's cases the negative pole had been placed on the mucous membrane. How much benefit was to be derived from the application of a copper sound or electrode to the mucous membrane had yet to be determined. He was in accord with Dr. Roe regarding the variable strength of the milliamperemeter. He

trusted entirely to the sense of his patient. He found that he could not use more than eight or ten milliamperes in the nose, and some patients complained of three milliamperes.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Meeting of October 10, 1894.

The President, Dr. DE FOREST WILLARD, in the Chair.

(Concluded from page 763.)

Cases Illustrating the Operative Treatment of Iliac (Spinal) Abscesses.—Dr. JAMES K. YOUNG said that these cases illustrated the operative treatment of iliac abscesses of spinal origin, and stated that he was indebted for the histories of the cases to Dr. Joseph M. Spellissy, assistant surgeon in the Orthopædic Dispensary.

He had intended reporting a similar case which had occurred in private practice, in which Dr. Willard, Dr. Ashhurst, and himself had been associated. In this case it had been considered advisable to either trephine the upper part of the crest of the ilium or remove a portion with a rongeur forceps, so as to permit the drainage-tube to lie flat in the iliac fossa. The latter had been done, and had appeared to facilitate the drainage and healing of the abscesses rather than to retard them.

The frequency of these abscesses was well shown in Michel's statistics, in which out of forty-eight abscesses of spinal origin, thirty-nine, or seventy per cent., had been in the pelvis.

In regard to the treatment, the opinions of authorities ranged from extreme expectancy to early and radical operation. Two plans of treatment were offered: that of expectancy, and that of incision and drainage. Cases were recorded in which, under expectancy, recovery had ensued; notably one each of Dr. Taylor's and Dr. Bradford's and Dr. Lovett's, and the speaker had one now under observation in which absorption appeared to have occurred.

There were two other methods to which attention must be called: 1. Repeated aspiration. 2. Injection of fluids to promote absorption.

The former was unsatisfactory on account of the non-withdrawal of caseous clots, and the latter dangerous, and in some cases fatal, from the absorption of carbolic acid. The objections to the early radical operations, especially erosion of vertebrae, was the high mortality, and Dr. Rupprecht, of Dresden, had informed him six years ago that after a fair trial he had abandoned the radical operations, because fifty per cent. of the patients had died from the operation. The operation here advocated was performed under strict antiseptic precautions. The abscess was opened by careful dissection, it was thoroughly irrigated with boiled water and boric-acid solution, a long, grooved director was passed up to a point above the sacro-iliac juncture, and a straight, longitudinal incision was made upon it. A rubber tube was passed through and secured with safety pins. Emulsion of iodoform (ten-per-cent.) $\frac{3}{4}$ ss. was thrown in, iodoform gauze packed about the wound, and a bichloride dressing applied.

The indications for the operation were: 1. Where the abscess was large and making pressure upon important organs. 2. Where the abscess was increasing rapidly in size. 3. Where there was danger of rupture of the abscess into the peritoneal cavity.

Dr. WILLIAM J. TAYLOR thanked Dr. Young for presenting these cases himself. He had used this method of treatment several times in the last year with good results. There was one point to which he desired to call attention, and that was that instead of the curette he had used with advantage pieces of

gauze on long forceps, and had swabbed out the whole interior of the abscess. In that way we removed a large amount of granulation tissue containing tubercle bacilli. With this method he used thorough flushing with plain boiled water, the water being allowed to flow while the gauze curette was being used.

With regard to the length of time that the drainage-tube was allowed to remain, his experience was that the sooner we got rid of the drainage-tube the better. With the method to which he had alluded he found that within a week, sometimes in a few days, he could remove entirely the drainage-tube, and although there was some discharge, the amount was small, and the recovery was rapid, considering the extent of the disease.

Dr. G. G. DAVIS thought that the question of operation depended upon the peculiarities of the case. He should be inclined to leave the abscess alone where he thought it was not enlarging, or that it would ultimately be absorbed. He thought that it was hopeless to attempt to cure them by any direct action upon the diseased part. As Dr. Young had said, the attempts in the way of curetting had been failures, and any operative procedure that attempted to eradicate the bone disease would likely be a failure. If the abscess was small, and did not show a tendency to increase, the speaker believed that it would be better to let it alone. He remembered two cases in which, after opening, the discharge had continued profuse, and death had occurred. He did not believe that the discharge was kept up by the condition of the abscess cavity, but by the tuberculous process in the bones themselves. While he should not hesitate to operate in a rapidly growing abscess in an individual more or less healthy, and where the promise of repair was moderately good, yet in such a case as he now had under observation, an adult, with probably some tubercular changes in the lung, who now had a fistula in ano, a tuberculous testis, and an iliac abscess on the right side, he had no doubt that if this abscess had been opened the suppuration would be prolonged and the retrograde changes would be hastened. If, as he had said, the individual had been moderately healthy and capable of reacting, he should do as Dr. Young had done.

Dr. JOHN B. ROBERTS said he was interested in two points of the discussion. One was the expression of the opinion that a good many of these cold abscesses, or tubercular abscesses, should probably be allowed to go without opening because of the probability of absorption taking place. His own feeling had been that so few were absorbed that, as soon as he saw one, he had been inclined to incise it, as the risk under antiseptic treatment was so slight. He should like to hear this point developed a little more.

The statements as to the rapidity with which these tubercular abscesses healed after opening, with only a small sinus and a moderate amount of discharge remaining, was interesting to him, because that had not been his experience, probably, he said, because he had not treated them so satisfactorily. He should like to hear this brought out more thoroughly.

The more radical operations of curetting and cutting down, and trying to get rid of the carious bone, which had been vigorously advocated, did not seem to meet with the approval of the members who had spoken. That was a comfort to him, as it had been his practice to refuse such operations.

Dr. M. PRICE stated that he had no experience in spinal surgery, but the observation of these two cases would lead him to send such cases to the man who would treat them in this way. Dr. Davis's criticism as to operation was, in a measure, outside of the scope of the discussion. It was a question whether or not we could benefit a man with tubercular deposits in various parts of his body. Pus was a foreign body, and it was doing damage no matter what part of the economy it was in, and should be removed. The fact that the patient was weak and

broken down was no argument against operation. If there were any cases that would suggest waiting it would be among the strong and vigorous, those who could combat disease and resist the poisonous effects of absorption of pus. His feeling was that we should always remove pus, and drain if we could. He saw no reason why the treatment laid down by Dr. Young was not the proper treatment in spinal diseases, where the result would be fatal if the large majority of cases were left to Nature. Even if a large proportion of the patients died it would be no argument against operation. He believed that the two cases shown were one of the best arguments in favor of this method of treatment. Both of the children showed that they were in good condition. He was surprised that Dr. Davis should recommend the leaving of a large abscess, thus poisoning the patient under the possible chance of recovery. The pus was dangerous, and should be removed. It was so in the pelvis, and the spine was no exception.

Dr. DAVIS said he was not aware that he had said anything derogatory to Dr. Young's views or his method of treatment. It was simply a choice of cases. He believed that in Dr. Young's cases the choice had been properly made. He had spoken against the adoption of incision in all cases of abscess. Dr. Price had asked the reason why we should leave pus. The pus of cold abscess was different from that of acute abscess. The speaker could not recall any case of acute abscess where he should hesitate to let pus out, and when it came to abscess in which the active organisms, which had been largely instrumental in the production of that abscess, were dead, then we had simply a foreign body which was liquid to a great extent, and which at times did become absorbed, and one should consider well before opening it. In deciding whether or not to open these abscesses, he laid stress upon the condition of the patient. Dr. Roberts, with his usual modesty, had suggested that some lack in his operative procedures might account for some of the results that he had had, but Dr. Davis was sure that all knew the care with which he attended to his cases, and that this was a very insufficient explanation to account for their continued suppuration. The rest of us could take it for granted that if such results occurred in the hands of a surgeon as careful as Dr. Roberts, they were as apt to occur in our hands. There were certain cases of abscess in connection with bone in which, if the abscess was opened, suppuration was thereafter continuous and more or less profuse, and in a markedly tuberculous patient would not infrequently lead to death.

He had no doubt at all that absorption of pus did take place, but, as Dr. Young had pointed out, where the abscess was large and there was danger of rupture into adjacent cavities, or where there was a rapid increase in size, the indications for relief were clear. He should not expect absorption in such cases, nor should he hesitate to operate. Where the abscess showed no tendency to increase, particularly in a weak strumous individual, he should certainly adopt a conservative policy.

The PRESIDENT said he did not believe in allowing pus to remain in the body. As soon as we were certain that pus existed in any cavity we should adopt measures for its removal. In regard to the old theory that hectic fever had resulted from these incisions—that had been simply septic fever. A temperature sheet, such as had been shown, where, after the operation, the temperature on only one occasion had reached 100°, showed that "hectic" fever was preventable. Moreover, in many cases, where before operation, the temperature had been from 103° to 104°, on the day following incision it would be found below 100°. This temperature of 104° burned the life out of these patients, and these were the ones that should be operated on to get rid of the poison. Tuberculous pus was dangerous if allowed to remain; it was a focus of disease, and from it new

foci in other parts of the body might be developed. Therefore, he believed in incision under thorough aseptic and antiseptic precautions, with thorough drainage and thorough curetting where it was possible. There was one caution to be observed when making through-and-through drainage—care should be exercised in the use of the curette on the peritoneal side of the abscess. The curette might cause little perforations, and then if, as was sometimes done, peroxide of hydrogen was injected, small quantities of pus might be forced through these openings.

These wounds could be kept aseptic; he knew of cases that had been discharging for months, yet the wound had been kept absolutely aseptic; but if a fresh suppurative process was ingrafted on these sinuses there would be a serious drain, and probably great danger to the patient. He was thoroughly satisfied with the operative treatment, not that it cured the original disease, but it relieved the drain on the patient, diminished the fever, and, if accompanied by proper fixation and by hygienic measures, permitted the patient to become hearty and strong, in place of the wretched, worn, exhausted individual which we so often saw as the result of poisoning from the absorption of tubercular pus.

Erasion of the vertebræ was a dangerous and also a difficult operation, and in the end the surgeon was never certain that he had eradicated the disease. That was the real objection to erasion. If we could be certain that we could remove all the disease, it would be worth all the time, trouble, and risk which were required to reach the source of trouble. He did not believe that there was any operator so adept as to be able to work entirely around in front of the body of the dorsal vertebræ. He certainly had never succeeded except in cases where there had been a large deposit of tuberculous matter and where the body of the vertebræ had been broken down. In healthy dogs he had tried over and over after removing the head of a rib, but had never succeeded without getting into the pleural cavity. In one case where there had been a large tubercular mass in front of the vertebræ, pushing the pleura forward, he had been able to pass a loop of tubing entirely around.

Dr. YOUNG said that the conservative method was a well-accepted form of treatment. There were on record two well-authenticated cases in which recovery had followed where there had been large abscesses in this region, and the patients had refused operation. They were those of Dr. Taylor, of New York, and the case recorded by Dr. Bradford and Dr. Lovett. Two years later the abscesses had disappeared. He had now under observation a patient in whom there had been a large abscess which had now disappeared.

In speaking of rapid cures in these cases, he had been speaking as a surgeon in chronic cases. By "rapid cure" a chronic surgeon would mean months.

Iliac Abscesses Non-spinal in Origin.—The PRESIDENT read a paper with this title in which he said that iliac abscesses arising from causes other than spinal caries were not infrequent. Accumulations of pus in this region should receive careful attention, as the prognosis would be greatly influenced by the source of trouble. He had seen a considerable number of these pus accumulations either from direct or indirect violence. In several instances the individual had been conscious of a sudden pain or "giving way" within the pelvis during violent exertion or a sudden wrench of the body, or from other peculiar movements. This was usually followed by pain or discomfort. In two or three of his cases the pain had lasted for months, and in one instance for a year, before any positive results had been discoverable. In the majority of cases a rupture of some fibers of the iliacus probably took place, suppuration followed, and the pus slowly made its way downward toward Poupart's ligament. There was usually slight flexion of the

leg, or at least an inclination to relieve the pain by relaxation of the tense sheath.

At the present day it was well to remember that an individual might have pain and inflammation even in the right iliac region without having appendicitis, and that a woman might have a pelvic abscess which was not due to tubal disease.

One case he recalled where a man had suffered for months and had become greatly emaciated and exhausted, presenting the appearance of tubercular disease, yet had been speedily and thoroughly cured by through-and-through drainage of a pus cavity in this region.

In another case the condition found had apparently been due to degeneration of the tissues from an attack of the grip. The patient had not been conscious of any injury having been received in this region, yet there had been a possible history of rupture of some of the fibers of the iliacus several months previous to an attack of influenza. When seen he had high temperature, chills, perspiration, etc., and had been in bed many weeks, suffering intensely with pain down the leg and in the hip. The hip had been partially flexed and adducted, but there had been no thickening about the trochanter or hip joint. The left iliac fossa had been firm and dense, and a large tumor had presented itself under Poupart's ligament extending down the vessels.

Two quarts of pus had been evacuated through an incision just below the anterior spinous process, and a tube had been carried back to a counter-opening made above the crest of the ilium. No bare bone had been discoverable, and all the symptoms of hip disease had been speedily relieved. There had been no evidence of spinal caries.

In another case the mass had been at first believed to have originated from an appendicitis, but this supposition had afterward been proved to be unfounded.

In another instance there had been deep-seated pain, emaciation, and so forth, indicating malignant disease. An incision had been decided upon with the result of obtaining a large amount of pus; successful recovery had ensued. In this case there had been no evidence at all of bone disease, and the result had justified the diagnosis.

The conditions with which these abscesses were most liable to be confounded were abscess from spinal caries, from hip disease, and from innominate disease. He had seen a number of cases of the latter complaint where the caries had been situated upon the inner side of the innominate bone, and in one instance the osteitis had been at the internal face of the sacro-iliac junction.

It was frequently difficult to decide in a case of bared iliac bone whether the bone lesion had been primary or whether it was a secondary result from maceration in the pus.

A careful history of each case was requisite in arriving at a conclusion, and in some instances a diagnosis was only possible after an incision. In spinal caries there would necessarily be rigidity of the back, but not necessarily pain nor even deformity. If there was vertebral osteitis there would usually be a history of "stiff back." Of course, if kyphosis was present, the diagnosis was easy.

A diagnosis from abscess from hip disease which had perforated the acetabulum was not always easy. There might be flexion of the hip; there might be adduction or abduction, and there would necessarily be rigidity with fixation, especially if tension was put upon the iliac muscle. To make a correct diagnosis required close attention to the whole group of symptoms. If a surgeon considered a single symptom rather than the group he would find it easy to confound these abscesses with any one of the conditions already mentioned.

The speaker had seen a number of cases of sarcoma in this

region, and in the early stage he did not believe that it was possible for any one to arrive at a positive diagnosis. The history might throw some light upon the subject; but, as many sarcomas were lighted into discoverable existence by injury, even this was of but little service.

Dr. M. PRICE said that some time ago, while in Muncie, he had conversed with a man who in early life had had hip disease. A few years ago a tumor had appeared on the previously diseased side, and he had come to Philadelphia and had been examined by a distinguished surgeon, who told him that he had tuberculosis, and that the result would be fatal, and nothing could be done. He had consulted others, but no one would operate. He had returned to his home, and spent three or four months in bed. He had insisted that the mass should be opened, but none of the local physicians would do it. Finally, he had taken a razor and cut in above Poupart's ligament, and at once a large quantity of pus had escaped. In six or eight weeks he had recovered, and had since remained well. He had no doubt that that had been an abscess of the character of which Dr. Willard had spoken. We should never turn away any of these cases without a thorough investigation.

Dr. Price had observed a patient who had been an epileptic. Fifteen weeks ago he had fallen from a cherry tree, and a week later a tumor had developed in the splenic region. On examination the speaker thought that the patient had a splenic abscess. He had made a small incision, and two or three quarts of peritoneal fluid had escaped. The peritonæum had evidently been injured, and a localized peritoneal dropsy had been the result.

He had recently been asked by Dr. Keller to assist him in opening an abscess of the kidney. They had carefully cut down on the abscess, and had evacuated two or three quarts of pus. The finger could be passed over the crest of the ilium toward the pelvis. The boy had made a good recovery. This had evidently been another case due to injury.

Dr. WILLIAM J. TAYLOR related a case bearing on this subject. An Italian while lifting a heavy weight had felt something give way in the right side. In two weeks a tumor had appeared midway between the anterior superior spine and the umbilicus. This had gradually increased in size. The speaker had seen him in consultation, and had come to the conclusion that it had been some form of abscess. He had made an incision, and found a very extensive abscess extending around toward the right kidney, but outside of the peritonæum, evidently a perinephritic abscess. With drainage he had recovered, the wound had healed nicely, and he had had no trouble for eighteen months. Then the whole thing had recurred, and six weeks ago Dr. Taylor had again operated on an abscess in the same position. In three weeks it had healed absolutely, and he was again well.

Dr. H. A. SLOCUM recalled two patients who presented symptoms similar to those of iliac abscess. One was an English woman with a large scar in the iliac region, the result of an operation in England four or five years ago. He had assisted in the second operation for inflammation in the right side, and had found remains of the broad ligament in the scar on the left, which showed that the abscess had been connected with the pelvis. In another case which had been under observation for eight years, and in which he had advised operation, the symptoms which had presented themselves before operation might have been mistaken for those of iliac abscess. The tubes, ovary, and omentum had formed a large mass which had raised the abdominal wall three fourths of an inch in the left iliac region. The whole mass had been found agglutinated and had been removed. The patient was now perfectly well, three years after operation.

Dr. JAMES M. BROWN recalled two cases from traumatism. The first case had been that of a man who, while supporting a heavy weight, had felt something give way in the left iliac region, incapacitating him for work for a few days. He afterward had been compelled to give up work, and in a few months an abscess had formed and opened above the crest of the ilium posteriorly. This man had refused operation and died with albuminuria. In the second case the man had fallen, striking the left lumbar region. Here the same course of events had followed with exception that the opening had occurred anteriorly and the man had recovered.

The PRESIDENT said that his object in calling attention to this group of cases had been simply to emphasize the fact that abscesses in this fossa might occur independent of spinal, hip, tubal, or appendiceal disease. These cases showed that abscess here was like other abscesses. He believed that pus in the body was harmful; if we could evacuate it safely we should do so, and as soon as it was probable that pus was present we should make an incision and explore. This prevented the abscess from extending and burrowing, and avoided the danger from high temperatures.

Pulmonary Calculus.—Dr. A. J. DOWNES exhibited a specimen, and related the case of a woman, eighty-nine years old, who, while eating breakfast on Saturday morning, September 29th, in her usual health, had suddenly been taken with a severe coughing spell. During the following few days she had had several similar spells. On Thursday, about 4 P. M., he had been present during the worst and last one. While listening to the chest during this attack he had found no air entering the left lung. The attack had ended with a copious discharge of muco purulent matter, slightly blood-tinged, which in striking the basin had given a sound. This had been the calculus which the speaker presented: quite too large, it would seem, to be cast up from the left bronchus, where it evidently had been. The patient had hardly coughed since, and had been entirely free from a bronchial irritation and expectoration she had suffered from for about fifteen years.

Dr. FRANCIS RUDEROW recalled the case of a negro, forty-two years of age, who had been admitted to the Episcopal Hospital, suffering with nephritis. He also had had attacks of spasmodic asthma, and insisted that when the attacks came he felt a blocking in the region of the right bronchus. He had died suddenly, and at the autopsy there had been found a curious calcareous deposit in the left bronchus, an inch and a quarter in length. This had blocked the bronchus entirely, and had been undoubtedly the cause of death.

An Unfavorable Result of Osteotomy.—Dr. DE FOREST WILLARD presented a case which had come under his notice, which illustrated one of the bad results that might follow osteotomy. He believed most enthusiastically in osteotomy for the correction of deformities, and in ninety-nine cases out of a hundred we could obtain capital results without pus. This case had been operated on by another surgeon, and had been done some years ago. The limb was greatly atrophied and deformed. There was scarcely any muscular tissue left. The cicatrix was also exceedingly sensitive. He feared that ultimately amputation would be required. Although he was a strong advocate of the operation of osteotomy, he thought it well to know the other side of the question. He presumed that in this case septic infection with sloughing had occurred. In the last three years he thought that he had not seen a single drop of pus after an operation of this character. Every one had healed as a similar fracture of the leg.

Dr. WILLIAM J. TAYLOR had never seen such a result as had been shown, following osteotomy, nor had he seen any pus. He had seen, however, in one case of simple fracture with no

external wound, the patient die of pyæmia, the direct result of the fracture, and the post-mortem had shown extensive septic inflammation.

Book Notices.

Syllabus of Lectures on Human Embryology; an Introduction to the Study of Obstetrics and Gynæcology. For Medical Students and Practitioners. With a Glossary of Embryological Terms. By WALTER PORTER MANTON, M. D., Professor of Clinical Gynæcology and Lecturer on Obstetrics in the Detroit College of Medicine, etc. Illustrated with Numerous Outline Drawings. Philadelphia: The F. A. Davis Company, 1894. Pp. vi-125.

THIS little book is designed chiefly as a text-book for students of medicine. Its aim is to present an outline of the principal facts in human embryology. The general arrangement followed is that adopted by the author in his lectures on obstetrics. The subject of embryology undoubtedly does not receive the attention in undergraduate schools which its importance deserves. The surgeon and gynæcologist must deal with many conditions which can be fully understood only by a knowledge of embryology. In the light of such knowledge many peculiar and obscure conditions become perfectly clear. The author has done good work in presenting the subject so concisely and plainly.

Laboratory Manual of Elementary Chemical Physiology and Urine Analysis. By JOHN H. LONG, M. S., Sc. D., Professor of Chemistry and Director of the Chemical Laboratories in the Schools of Medicine and Pharmacy of Northwestern University. With Numerous Illustrations. Chicago: E. H. Colegrove & Co., 1894. Pp. 366.

THIS work is interesting both in subject matter and in method of treatment, and represents the practical laboratory work required by the students under the author's supervision. While it contains little that is original so far as the facts stated are concerned, it is quite new in the methods in which they are arranged and treated. The book consists of two parts, the first dealing with simple experiments in chemical physiology, while the second takes up the subject of urinary analysis as properly following the first. While chemistry is well taught in most medical schools, the very important subject of chemical physiology is often neglected. The first section deals with the chemistry of the various proximate principles of food, the blood, digestive secretions, milk, animal extracts, numerous vegetable products, water, and air. Many of these features are presented more in detail than is customary with books of this class. The book can not fail to be a valuable one to the medical student.

Handbook of Obstetric Nursing. By FRANCIS W. N. HAULTAIN M. D., F. R. C. P. Ed., and JAMES HAIG FERGUSON, M. D., F. R. C. P. Ed., M. R. C. S. Eng. Second Edition, revised and enlarged. With Thirty-three Wood Engravings. Philadelphia: J. B. Lippincott Company, 1894. Pp. xiii-243. [Price, \$1.]

THIS little manual was prepared originally for use in the training school for nurses at Edinburgh. While it undoubtedly fulfills the purpose for which it was written, its title is very misleading. It is a manual for the midwife, and not for the obstetrical nurse as the term is understood in this country. The direction is given, for example, that the nurse, if no medical attendant has been engaged, should rupture the membranes

when full dilatation of the cervix has occurred. The directions for the management of the labor are, on the whole, excellent, if it is understood that they are designed for midwives. We do not believe that a one-to-forty carbolic-acid solution or a one-to-two-thousand sublimate solution can be safely intrusted to a nurse for indiscriminate use. As a manual on obstetrics, there are a number of American works superior to this; as a manual on obstetric nursing, the same is also true. It is not in fact, in our opinion, a safe book to place in the hands of the ordinary obstetrical nurse.

A Text-book of Practical Therapeutics, with Especial Reference to the Application of Remedial Measures to Disease and their Employment upon a Rational Basis. By HOBART AMORY HARE, M. D., B. Sc., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia, etc. Fourth Edition, enlarged and thoroughly revised. Philadelphia: Lea Brothers & Co., 1892. Pp. xiii-17 to 696.

THE hope expressed in the preface to the fourth edition "that this new edition will prove even more useful than its predecessors to the doctor who needs a book for ready reference in daily practice," is likely to meet with its fulfillment. A medical work which in less than four years runs through three editions is apt to succeed in its fourth, and though popularity does not necessarily presuppose worth, yet in this case it is the reward of merit.

The volume is in no sense an exhaustive one, but as a concise and reliable work the object of which is to furnish much information in little space, and designed for the information of the practitioner and not of the therapist, it must be highly esteemed.

The additions in the fourth edition comprise articles on methylene blue, chloralose, pyrogallol, condurango, convallaria, duboisine, hypodermoclysis, enteroclysis, lavage, mineral springs, and climatic treatment. With these additions and with much revision of lesser prominence, the work is in every way abreast of the times. Moreover, it is prepared in conformity with the United States Pharmacopœia of 1890.

Jahrbücher der hamburgischen Staatskrankenanstalten. Herausgegeben von den Aerzten dieser Anstalten unter Redaktion von Professor Dr. TH. RUMPF, Direktor des neuen allgemeinen Krankenhauses Hamburg-Eppendorf. Band III. Jahrgang 1891-1892. Mit 46 Abbildungen im Text und 13 Tafeln. Hamburg und Leipzig: Leopold Voss, 1894. Pp. xxxvi-517. [Preis, M. 20.]

THIS third annual report of the Hamburg General Hospital is a splendid volume, well worthy of the high repute of the institution.

A list of the officers, tables of the expenditures and receipts, and the usual tables of diseases treated in the various divisions during 1891 and 1892 comprise the first section of the volume.

The second section contains papers by Dr. Rumpf and Mr. Zimmermann on the disinfecting establishment. Dr. Rumpf contributes papers on the regulations relating to communicable diseases and on cholera as observed in the hospital in 1892. Dr. A. Schütz has a paper on the influence of cholera on menstruation and pregnancy. Dr. C. Sick and Dr. G. Hager have articles showing the utility of infusion therapy in cholera, and there are several other interesting papers on that disease.

Other notable contributions are those of Dr. J. A. Gläser on gonorrhœal rheumatism, of Dr. A. Schütz on infantile empyema, of Dr. F. Möller on hallux valgus, and of Dr. A. Staelin on catatonia.

The Mother's Help and Guide to the Domestic Management of her Children. By P. MURRAY BRAIDWOOD, M. D., F. R. C. S., formerly Senior Medical Officer to the Wirral Ho-pital for Sick Children. London: The Scientific Press, Limited, 1894. Pp. viii-134. [Price, 2s. 6d.]

THE author of a work of this character has a difficult task. He must be explicit, but must not encroach upon the field of the physician. The present work, so far as it goes, is to be commended. The chief criticism is for sins of omission. The chapters on management and nursery hygiene are excellent. The subject of dress has not been treated with sufficient explicitness. Great improvements have been made during recent years in the dressing of babies, but they are not referred to by the author. The very important subject of breast-feeding and management of the breast fed infant receives but slight attention. Lack of attention to this subject has rendered artificial feeding necessary in many cases where it might have been averted. The directions for artificial feeding, while correct, are vague. Thin cream is to form a part of the diet, but no explanation is given as to what is meant by that article. It might vary widely in strength of fat. Seibert's method of feeding is adopted, but it is an error, we believe, to attempt to regulate the amount of food solely by the body weight. The size of the stomach does not depend upon the amount of fat upon the baby's body. The most glaring error in the book occurs in the chapter on sterilized milk, where the author refers to the importance of rendering milk digestible by this process. Milk is sterilized for one purpose, and only one—prevention of disease by the exclusion of germs. This idea that sterilized milk is more digestible and requires no attention in preparation, has caused much illness and suffering. Such an error should not have occurred in a work of this character.

BOOKS, ETC., RECEIVED.

Obstetric Surgery. By Egbert H. Grandin, M. D., Obstetric Surgeon to the New York Maternity Hospital, etc., and George W. Jarman, M. D., Obstetric Surgeon to the New York Maternity Hospital, etc. With Eighty five Illustrations in the Text and Fifteen Photographic Plates. Philadelphia: The F. A. Davis Company, 1894. Pp. viii-207. [Price, \$2.50.]

A Compend of the Practice of Medicine. By Daniel E. Hughes, M. D., Chief Resident Physician, Philadelphia Hospital, etc. Fifth Physicians' Edition. Thoroughly revised and enlarged. Including a very Complete Section on Skin Diseases and a New Section on Mental Diseases. Philadelphia: P. Blakiston, Son, & Co., 1894. Pp. viii-9 to 568. [Price, \$2.50.]

Statistique et observations de chirurgie hospitalière. Par le Dr. Polaillon, chirurgien de l'Hôtel-Dieu, etc. Paris: Octave Doin, 1894. Pp. vii-9 to 413.

Les Gaz du sang. Applications à l'hygiène expérimentale. Par N. Grehaut, professeur de physiologie générale au Muséum d'histoire naturelle, etc. Paris: G. Masson, 1894. Pp. 7 to 166. [*Encyclopédie scientifique des aide mémoire.*]

Statistik der infectiösen Erkrankungen in den Jahren 1881-1891 und Untersuchung des Einflusses der Witterung. Von Josef Körösi, Director des Communalstatistischen Bureaus. Uebersetzung aus dem Ungarischen. Berlin: Puttkammer & Muhlbrecht, 1894. Pp. viii-141.

Schwund und Regeneration des elastischen Gewebes der Haut unter verschiedenen pathologischen Verhältnissen. I. Von Kurt Passarge, Königsberg i. Pr. II. Von Dr. Rud. Krosing, Stettin. Mit zwei chromolithographischen und zwei Lichtdruck-Tafeln. Hamburg und Leipzig: Leopold Voss, 1894. Pp. 7 to 106.

Abdominal Hysterectomy. By Homer L. Ostrom, M. D. [Reprinted from the *New York Medical Times*.]

A Case of Chronic Peritonitis, with Intestinal and Abdominal Fistulæ. Enterorrhaphy. Recovery. By Frederick H. Wiggin, M. D. [Reprinted from the *Medical Record*.]

Paraxanthin as a Factor in the Ætiology of Certain Obscure Nervous Conditions. By B. K. Rachford, M. D., Ohio. [Reprinted from the *Medical News*.]

Uric-acid Leucomaines as Factors in the Ætiology of Migraine and Kindred Nervous Diseases. By B. K. Rachford, M. D. [Reprinted from the *Medical News*.]

Chairman's Address. By Joseph Eastman, M. D. (Read in the Section on Obstetrics and Diseases of Women at the Forty-fifth Annual Meeting of the American Medical Association at San Francisco, June 5-8, 1894.) [Reprinted from the *Journal of the American Medical Association*.]

Pathologie des Gehirns. Von Dr. S. E. Henschen. [Separat-abdruck aus *Klinische und anatomische Beiträge*.]

New Inventions, etc.

A NEW INSTRUMENT FOR VIBRATORY MASSAGE OF THE NASAL MUCOUS MEMBRANE.*

By G. MELVILLE BLACK, M. D.,
DENVER,

PROFESSOR OF LARYNGOLOGY AND RHINOLOGY, COLORADO SCHOOL OF MEDICINE;
EX-HOUSE SURGEON, MANHATTAN EYE AND EAR HOSPITAL, NEW YORK.

VIBRATORY massage of the nasal mucous membrane was first brought to my attention about two years and a half ago by an extract from a paper read by Dr. Michele Braun, of Trieste, before the International Medical Congress at Berlin. The method appealed to me as one worthy of a trial; particularly so, as I am a firm believer that the major part of the efficacy of local applications to mucous membranes of the nose is due to the thoroughness that the said mucous membranes are freed from secretion and effete matters, either by virtue of the stimulating effect upon the secretion or otherwise. I at once tried the method as directed by Braun in a case of atrophic rhinitis. This was a case in which I had found it to be especially difficult to free the nasal mucous membrane of all secretion. After first cleansing the nasal passages as formerly, I for the first time practiced vibratory massage. I found the technique somewhat difficult and tiresome, but was much gratified to find that after its application, and then cleansing the nose as before, the mucous membrane was absolutely free from all secretion. My conclusions were that if it did nothing more, it was a vast adjunct to our means of rendering a case of atrophic rhinitis perfectly clean, and, as that was the object I had been striving for, benefit must follow. I continued to practice it upon the said case, as well as on several others of a like kind, in all of which the prominent feature was the ease with which all secretion was removed. In all of these cases more benefit was obtained than by any other method I had ever practiced.

In our climate, where the humidity is low and the mucous membranes of the nose have to perform increased function to supply to the inspired air sufficient moisture to render it in a state of saturation to be received by the lungs, we find a great number of people complaining of an accumulation of scabs in

* Read before the Denver and Arapahoe Medical Society, November 22, 1894.

the anterior nares and of stringy secretion in the nasal chambers which is either blown out anteriorly or drops back into the nasopharynx. Upon examination we find the turbinated bodies neither in a state of marked hypertrophy nor atrophy, but a condition somewhere between—from a previous hypertrophy resulting in a reduction in the size of the part from contraction of the newly formed connective tissue, thereby interfering with its secretory function, especially the serous fluid derived from the vascular plexuses, which have been bound down by the said contraction. These people would be comparatively free from annoyance in a humid climate, but not so in ours. Why? Because it is impossible for such nasal mucous membranes to throw out enough fluid to supply the inspired air with the proper amount of moisture. The tendency is for the surface of the mucous membrane to become dry; hence cell desquamation, formation of thick secretion, and scabs. As I saw the turbinated bodies building up under the vibratory massage, evidently from absorption of the connective tissue which had replaced the normal elements of the part and regeneration of the cellular elements and vascular plexuses, it occurred to me that in those cases of fibroid contraction from hypertrophy vibratory massage would be of special value.

I gave it an extended trial in a large number of just such cases, with most gratifying results in all, where the patients were willing to come regularly and submit to it.

The great objection to the method was that it was very tiring to the operator. I looked about to find an instrument that would relieve the method of this objectionable feature. Every instrument I could find was cumbersome, expensive, and did not reproduce the vibrations produced by hand.

One day, as I was using a nasal trephine, an idea struck me that the dental hand piece could be made a vehicle to attach a probe to, and the latter be made to vibrate by a shaft inserted into the hand piece fashioned after a trephine and made to carry a piece of leather that would flap against the probe as the shaft revolved.

The following diagram is a fairly good cut of the instrument, it being two thirds of the normal in size.

In explanation of it, the motor power is derived from an eighth horse-power electro-motor, to which is attached a White's dental shaft and hand piece. This part of it almost all rhinologists are supplied with to run trephines and burrs for removing septal excrescences and other purposes. To the hand piece is attached the probe carrier which slips over the hand piece by two rings and is held in place by thumbscrews. The probe (which is of the regulation size recommended by Braun, made of copper and with a bulbous end) slips into a tube soldered to

operator in each case, by regulating the amount of the electrical current to the motor.

Pieces of leather can be kept on hand of different sizes, which fasten into the revolving shaft, whereby the force of the vibrations can be augmented or diminished at will. A piece of leather about three quarters of an inch square and about one millimetre in thickness I find to answer my purpose for general use best. A piece of russet leather (so popular now for shoes) I find to be of about the best stiffness.

It was my custom when using vibratory massage by hand to first use a probe carrying a thin winding of cotton dipped in a four-per-cent. solution of cocaine to render the nasal cavity tolerant to further massage, then to proceed with probes wound with cotton carrying whatever application was thought to be indicated.

With the intranasal vibrator I have found that the use of cocaine was unnecessary, as the vibrations were so gentle and regular that the patients rarely complained. The ease with which it can be accomplished makes it now a pleasure, whereas by hand it was extremely irksome. Further, the greater number of vibrations to the minute with the intranasal vibrator over those by hand has decreased the number of sittings required to almost one half.

It has not been my intention to enter into a report of the general technique of vibratory nasal massage, or to go into a general discussion of its merits or demerits. It has many advocates, and to those who have not used it I would say, do not condemn it until you have once given it a fair trial. If you want more knowledge on this subject I would refer you to an article of Braun's in the May, 1894, number of the *Journal of Laryngology, Rhinology, and Otology*, London.

It has simply been my desire to bring to the attention of those engaged in nasal work an instrument which I believe comes nearer to reproducing the hand vibrations than any other on the market. I desire to thank Mr. E. B. Meyrowitz, of New York, for the careful manner in which he has followed out my instructions as to its construction.

Miscellany.

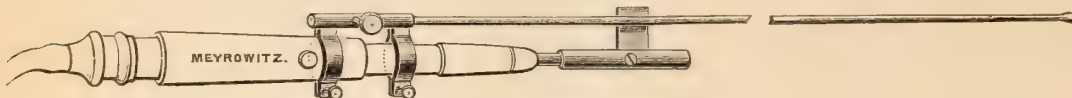
The Dietary of the New York State Hospitals for the Insane.—About a year and a half ago Dr. Austin Flint, of New York, prepared a dietary for the hospitals at the request of the

commissioners in lunacy. He has lately, at the commissioners' request, revised it in the

light of reports from the various institutions based on a year's experience with it. On September 26, 1894, Dr. Flint wrote to the commissioners as follows:

"GENTLEMEN: I have received your communication inclosing reports from the State hospitals on the practical working of my suggestions on dietaries and food supplies dated June 29, 1893.

"These reports indicate that the supplies have been more than ample. In a general way, the results of full trial show that my report of June, 1893, needs but little revision, although it was intended to be to some extent experimental. If my suggestions had been carried out less literally while adhering to their spirit and general features, no revision would have been called for; however, it is fortunate that my report has been fol-



the two rings and held fast by another thumbscrew. Introduced into the hand piece is a shaft which carries a piece of leather. As the shaft revolves the leather strikes against the probe during each revolution and causes it to vibrate. The vibrations are very gentle and even. Any number of vibrations can be obtained up to several thousand a minute, according to the capacity of the motor.

According to Braun, Laker, Demme, Dionisio, and others, the number of vibrations by an expert hand varies from four to eight hundred a minute, and that these vibrations should be extremely even. I believe that all concede that the greater number of vibrations to the minute the better the results obtained with the method. With my intranasal vibrator any number of vibrations can be had, according to the judgment of the

lowed exactly in so many instances, as it enables me to revise my original recommendations and to now prepare schedules which may be regarded as final and likely to stand the test of further experience. I have, therefore, to suggest the following corrected schedules:

"DAILY RATION.

"Meat, with bone, including salted meats, fresh and salted fish, and poultry.....	12 oz.;
"Flour, to be used in making bread and in cooking (may in part be substituted [replaced?] by corn meal and macaroni)...	12 "
"Potatoes.....	12 "
"Milk.....	16 "
"One egg.....	2 "
"Sugar.....	2 "
"Butter.....	2 "
"Cheese.....	1 "
"Rice, hominy, or oatmeal.....	1½ "
"Beans or peas (dried).....	1½ "
"Coffee (in the berry and roasted).....	5/8 "
"Tea (black).....	1/8 "

"In the purchase of beef, it is recommended that with each whole carcass purchased there be bought one fore quarter additional. This will give an extra quantity for soups and stews and provide additional roasting pieces for the officers' table. The clear meat of the parts that have been used in making soups may be served 'braized,' or otherwise prepared, from time to time. Though not so nutritious as when made of fresh meat, dishes prepared in this way may easily be made palatable, and would agreeably vary the diet, if not used too frequently. This recommendation is made to meet the suggestion of the superintendent of the Middletown hospital. In the purchase of mutton, veal, pork, etc., it is recommended, as a matter of true economy as well as contributing to the proper quality of supplies, to buy whole carcasses, not the inferior parts only, which latter usually contain a large proportion of bone. With the different classes of persons to be provided for—physicians, attendants, workers and non-workers, male and female—nearly every part of an animal can be profitably and economically used. In the purchase of certain other articles, such as coffee and tea, impurities or adulterations, even if not positively harmful, take away from nutritive efficiency and are not in the line of true economy. Flour, milk, eggs, cheese, potatoes, beans, etc., take the place, to a certain extent, of other articles which are more costly. It requires but little experience to learn that the waste of flour, milk, etc., of poor quality, involves more expense than the purchase of first-class articles.

"Some parts of a bullock contain only eight per cent. of bone; some parts contain fifty per cent. A high French authority (Payen) estimates that ordinary supplies of meat contain twenty per cent. of bone. The meat includes a considerable but variable quantity of fat. Veal should never be supplied unless it is of the best quality. The same remark applies to fresh pork. A calf, when dressed, should weigh about 130 pounds. A young hog, when dressed, should weigh 120 to 140 pounds. A dressed sheep should weigh 65 to 120 pounds. A dressed steer should weigh 650 to 900 pounds; the fore quarter weighing 190 to 250 pounds, and the hind quarter 140 to 200 pounds. About forty per cent. may be deducted for salt pork, hams, or bacon. One of the great advantages of skillful cooking is that inferior parts of carcasses may be utilized in the making of nutritious soups, stews, etc., which will take the place, to a great extent, of more costly articles and give more satisfaction to patients. Vegetable soups, also, may be largely used with advantage.

"One hundred pounds of flour will make one hundred and thirty-six pounds of good bread. Corn meal may be substituted for flour, but to a limited extent, as it is less nutritious and often disturbs digestion. Macaroni may be substituted for flour, but only as an occasional luxury. Bread should be made every day, and what is left over should be used in cooking and not be served again. If bread is made during the night and the baking finished as early as 3 A. M., it may be served the same day. If to be served the next day, it should be baked as late as practicable in the afternoon or evening. If bread is simply warmed through in the oven immediately before serving, the moisture absorbed by the gluten is driven off, and the bread is much more palatable and digestible; but bread should never be dried in this way more than once.

"The use of fresh vegetables in season will permit a suspension or reduction of the rations of rice, beans, and peas, with some reduction in the ration of potatoes. Fresh vegetables and fruits should be used freely. Onions should be used freely in cooking and should be served occasionally as a separate dish. I have long observed that onions are craved by inmates of hospitals. Turnips, parsnips, salsify, carrots, and beets may not strictly be classed as fresh vegetables, but they may be frequently used with advantage.

"In the revised ration I have recommended five sixths of an ounce of roasted coffee instead of an ounce of green coffee, assuming that coffee, properly roasted, loses about sixteen per cent. in weight. Coffee can be better and more uniformly roasted in large quantities and by experts than in a hospital. The coffee should be very finely ground before making the infusion.

"The ration does not include condiments and other flavoring articles, syrup, molasses, preserves, and compotes, such as apple sauce, apple butter, etc., which should be provided as occasion offers.

"If men and women are supplied at separate tables, it will be convenient to make up the supplies for each from this daily ration. Five per cent. may be added for men and deducted for women, making a difference of ten per cent. For workers, an addition of twenty-five per cent. may be made to the rations of meat, flour, and potatoes.

"The modifications which have been made in the 'daily ration' are the following:

"Flour has been reduced from sixteen ounces to twelve ounces. The superintendent of the Binghamton hospital says that the dietary is 'more than sufficient to meet the general requirements of the patients in a hospital of this kind.' The superintendent of the Utica hospital has used eleven ounces of flour and an ounce and five sixteenths of corn meal instead of sixteen ounces of flour. The superintendent of the Middletown hospital has used fourteen ounces of flour instead of sixteen ounces.

"Potatoes have been increased from eight ounces to twelve ounces. The superintendent of the Rochester hospital recommends that the ration of potatoes be doubled. The superintendent of the St. Lawrence hospital recommends that the ration of potatoes be increased to twelve ounces.

"Milk has been doubled. This is recommended by the superintendent of the Hudson River hospital and by the superintendent of the Rochester hospital. The superintendent of the Middletown hospital recommends that the ration of milk be increased four times.

"The ration of eggs has been reduced one half. It seems to be the general impression that this ration has been too large. I suggest that the eggs be made interchangeable with milk.

"The ration of cheese has been reduced one half. The general impression seems to be that cheese is not relished by pa-

tients. I suggest that cheese be made interchangeable with butter."

A Case of Death from Cholera contracted at a Laboratory.—The *Union médicale* for November 22d says that an assistant at the Hamburg Hygienic Institute died recently after an attack of cholera. After a premonitory diarrhœa which lasted a few days, asphyctic cholera accompanied by intense muscular cramps set in. There was moderate cyanosis, and the temperature varied from 95.7° to 98.4° F. Although the case appeared to be one of moderate intensity, all therapeutic measures were without effect; in spite of the injections given from the second day no reaction occurred and coma gradually set in. Characteristic bacilli were observed every day in the dejecta.

It is not possible to state exactly the manner of infection. The victim had worked constantly at the laboratory on the choleraic vibrio, but he had not recently made any experiments on himself with that microbe. It is thought that infection may have occurred by suction while using a pipette containing water which had been brought from Thorn, and that a certain quantity of it had been received into his mouth. A bacteriological examination of the water, subsequently made, was negative.

The Festival of Saint Luke.—The *Journal des sciences médicales de Lille* for November 3d contains an account of a recent celebration by the members of the *Société Saint-Luc, Saint-Côme et Saint-Damien* in honor of their patron saint. The instructors and students present at Lille united their prayers for the repose of the souls of their deceased fellow-members, for the relief of the sick, and for the continued prosperity of their own work. The Committee of Paris in connection with many provincial delegates celebrated their annual festival in the Church of Montmartre. Monseigneur d'Hulst officiated and delivered an excellent address on the social rôle of the Christian physician. Never, says the writer, has such a large reunion taken place, and, according to the Committee of Paris, Lille sent the largest number of delegates. M. Dauchez, the secretary-general, in his report, gave a *résumé* of the various works presented during the year and a history of the society. After the report a discussion took place on the practicability of creating a special bulletin for the society, and a vote was taken in favor of it, so that it is probable that before long the *Bulletin de la Société Saint-Luc, Saint-Côme et Saint-Damien* will be issued. The greatest cordiality existed at the meeting, and the fellow-members of Lille, says the writer, may congratulate themselves on the interest shown in their work by the physicians, who were profoundly grateful, and would endeavor, for their part, to extend the work of the *Société Saint-Luc, Saint-Côme et Saint-Damien*.

The Influence of Satiety and of Fasting on the Rapidity of the Absorption of some Medicinal Substances in the Stomach and on their Excretion in Healthy Persons.—The *Revue internationale de médecine et de chirurgie pratiques* for November 25th contains an abstract of an article published by M. F. P. Malinine in *Vratch*, No. 37, 1894. As the question is one of great interest to physicians, the author has made various experiments with potassium iodide and sodium salicylate in doses of four grains and a half, and the results obtained are as follows: 1. The absorption of these substances in the empty stomach is very rapid, but the reverse is observed when the stomach is in a condition of repletion, the absorption being then very much diminished. 2. While in the first case the results differ but slightly, not only in the same persons, but in different persons, in the second case there is a wide difference in the results. 3. The diminution of the absorption in a full stomach is shown not only by the delayed reaction of the

medicaments (in the saliva and in the urine), but also by a greater lapse of time between the beginning and the height of the reaction. 4. The reverse is observed when the stomach is in a condition of emptiness. 5. The potassium iodide appears either at the same time in the saliva and in the urine or from three to five minutes sooner in the former. 6. The latter circumstance probably depends on the unequal activity of the kidneys in different persons. 7. The sodium salicylate can not be detected in the saliva with iron perchloride. 8. The excretion of the medicaments is in proportion to the rapidity of their absorption. 9. The excretion of potassium iodide stops simultaneously in the saliva and in the urine. 10. The definitive elimination of the medicaments presents, in general, rather wide fluctuations. 11. The diminution of the absorption of the medicaments in a stomach full of food results from their mechanical mixture with the latter—which separates them from the walls of the stomach—and not from the afflux of blood exaggerated during digestion in this organ and from the increase of the blood pressure.

The Infectiousness of Whooping-cough.—At a recent meeting of the *Congrès de médecine interne*, held at Lyons, a report of which appeared in the *Journal de clinique et de thérapeutique infantiles* for November 22d, M. Weill stated that twenty-nine children suffering with whooping-cough had been placed in a ward in one of the hospitals with a hundred and twenty-three others, and not one of the latter had taken the disease. Twenty days had been the minimum time of their stay in the ward. All children over seven years of age had been left out of account, also those who remained in bed while in the hospital, leaving only those who were likely to take the disease, but no infection had resulted. While M. Weill thought that no positive conclusion could be reached from these facts, yet, he said, if whooping cough was infectious in the city and not in the hospital it was because different conditions existed. The most striking feature in this case was that the children who had been received at the hospital were in the last stages of the disease; in the city, on the contrary, contact with children suffering with whooping-cough occurred in the beginning, at a time when a diagnosis could not be made. This fact, he thought, should lead to new researches.

M. Moussous, of Bordeaux, stated that his service among those with whooping-cough was isolated, although it was evident that there had often been contact with other patients; nevertheless, he had never observed any infection. This, he thought, corroborated M. Weill's researches.

The New York Academy of Medicine.—At the last regular meeting, on Thursday evening, the 20th inst., a paper entitled *The Influence of the Bicycle in Health and in Disease* was to be read by Dr. Græme M. Hammond.

At the next meeting of the Section in Laryngology and Rhinology, on Wednesday evening, the 24th inst., the following cases will be presented: Fibroma of the Nasal Fossa, by Dr. C. H. Knight; Nasal Osteoma, by Dr. C. G. Coakley; Exfoliation of Cartilage during the Treatment of Laryngeal Tuberculosis, by Dr. J. W. Gleitsmann. Dr. F. E. Hopkins will read a paper entitled *The Recurrence of Lymphoid Hypertrophy in the Nasopharynx*. There will be an exhibition of instruments and apparatus.

At the next meeting of the Section in Obstetrics and Gynecology, on Thursday evening, the 27th inst., the following papers will be read: *Studies in Pelves, Pelvimeters, and Pelvimetry*, by Dr. Philander A. Harris; *Symphysiotomy in a Tenement House*, with a Report of a Case, by Dr. H. L. Collyer. There will be an exhibition of specimens and instruments, also reports of cases.

Original Communications.

TREPHINING.

A REPORT AND STUDY OF TEN CASES.*

By JOHN FRANCIS BURNS, M. D.,

VISITING SURGEON TO ST. JOHN'S HOSPITAL, LONG ISLAND CITY, N. Y.

CASE I. *Slight Osteitis of the Right Frontal Bone followed by Abscess of Brain.*—I was called upon to treat a man, aged thirty-five years, some five years ago. He was in a semi-comatose condition, with partial paralysis and anæsthesia of the left side of his body and right side of face. Pulse 70, unequal pupils, and temperature of 99°. After twenty-four hours, during which I made several examinations, I associated his condition with a recent scar which presented slightly to the right of the dividing line of the forehead, midway between the orbital ridge and the union of the frontal and parietal bones of the same side.

Not having any history and the man being unable to give any account of himself, I was forced to send for one of his family, when the following history was obtained:

The man had been struck with a hammer over the scar mentioned some six weeks previously. He was taken to Roosevelt Hospital in an ambulance, his wounds dressed, and he subsequently became an out patient, continuing in his attendance for about two weeks, when the wound healed perfectly and he was considered well. About ten days after the infliction of the injury, however, he began to act queerly, and had some chills and high temperature. His mental state was peculiar; at times he was a little flighty and again somewhat stupid, but his mental excitability and peculiarities became intensified and persistent. He was then taken to Bellevue Hospital, remaining in the alcohol wards for one week, and then discharged with the advice to his friends that "he would be all right," and that "his condition was due to chronic alcoholism." This history, with the accompanying symptoms, convinced me that the man had an abscess of the brain in the frontal lobe of the right side, with pressure downward and backward on the motor tracts of the internal capsule. Consultation with two other physicians tended to confirm this view, and by their advice I engaged in consultation an eminent surgeon. The surgeon agreed with me in the main, but advised the calling of an eminent neurologist, who persisted in looking at the case as one of extradural hæmorrhage, with pressure corresponding, "to over the motor areas"; the neurologist's opinion was given the greatest weight, and the operation undertaken on lines laid down by him. We found no extradural hæmorrhage, nor fluid of any kind extradurally, so the opening was continued downward and forward toward the point at which we had noticed the scar, with the result of finding a black, necrotic-looking spot in that neighborhood on the dura. Puncture with a Potain's graduated aspirator at this point yielded six ounces of laudable pus; incision and irrigation brought away much brain detritus, shreds, etc. A half-inch drainage-tube was inserted and the wound dressed antiseptically. The patient died after seven hours, having been *in extremis* when placed on table, with an intermittent pulse (56) and subnormal temperature and generally bad condition. I noticed after he recovered somewhat from the anæsthetic that his paralytic symptoms had improved. An autopsy was held next day and revealed a slight rarefying osteitis of the skull beneath the scar

tissue mentioned and a distinct abscess capsule, and that the abscess was confined entirely to the frontal lobe of the right side, the motor symptoms being evidently from late pressure.

This case illustrates many points and is very instructive:

1. It illustrates the frequency with which cases of this kind have been overlooked as to their surgical significance, for this man undoubtedly came under the observation of some very good diagnosticians during his illness. I doubt if his actual condition would go unrecognized or be at least unsuspected for such a long period to-day.

2. It illustrates the extreme conservatism which actuated medical and surgical men of eminence at so recent a period as five years ago in this department of surgery, and brings to light forcibly the lack of exact knowledge concerning these conditions that existed then—that is, both as to the lesions existing under given conditions and the localization of the same when the lesion was acknowledged.

3. It illustrates very forcibly the importance that the period of time elapsing between the infliction of the injury and the occurrence of the compression symptoms plays in formulating an opinion as to the character of the lesion to be dealt with. There is no doubt in my mind that if this man had been operated upon sooner, and especially if the trephining had been done immediately over or near the site of the scar, his chances would have been better; in other words, there would seem to be cases such as the above where focalization alone should not guide us, as the shock of the operation is much increased thereby and the chances of success are lessened. If the pressure symptoms progress continuously and in regular sequence, a point midway between two extremes would probably be the safest and best place to choose for the trephine.

By contrasting this case with No. 10 of this series many of these points will be differentiated in connection with hæmorrhage.

CASE II. *Depressed Impacted Fracture of Left Frontal Bone; Extradural Hæmorrhage and Abscess of the Brain.*—I was called upon to repair a badly shattered elbow fracture and dislocation in a man who had been injured about fourteen days previously in falling from a height of some fifty feet to the ground. I noticed at the same time a considerable puffiness of the cellular tissue in the vicinity of the left eye, and quite considerable chemosis of the ocular conjunctiva. Suspecting some damage to the bone with lack of sufficient drainage, and having the patient under ether for the repair of his arm, I turned my attention to his skull, and was somewhat surprised to find a depressed and impacted fracture of the frontal bone, including a portion of its orbital plate and ridge. As there was a great deal of discharge, and it seemed to me that the bone was not well nourished, and from its peculiar position that it might prove a source of subsequent danger to its corresponding eyeball, I trephined and removed the whole. After removing the bone I noticed over the dura some evenly spread clotted blood; but as the wound had been such an uncleanly one I was afraid to disturb the blood, fearing that some consecutive inflammation might ensue if I did so. I cleansed the surrounding parts thoroughly. The man did nicely for about a week, when he again began to manifest mental excitability at times, with some somnolency. After another week he sank gradually into a stupor

* Read by title before the Medical Society of the County of Queens at the semi-annual meeting, October 27, 1894.

and his condition became critical, pulse slow, respirations slow and irregular, and very hard to rouse. As I had seemingly relieved the cause of possible disturbance to this man's brain I was at a loss to account for his condition, especially so as the pus had ceased and the cellular infiltration and chemosis had entirely disappeared; the wound was perfectly healthy-looking and almost healed. Thinking possibly that the blood which I had seen over the dura might in some wise be responsible (there being no sign of the retention of pus), I opened the wound afresh, and was surprised to find that the thin layer of clotted, dried blood had been absorbed and I could see the dura plainly. The man was now in a dying condition and paralysis coming on. Remembering the former case, I decided to introduce a grooved director into his brain. I did so, and the pus immediately spurted out through the small opening. I then introduced a pair of dressing forceps, enlarged the wound in the dura, washed it out with Thiersch's solution, introduced a quarter-inch rubber tube, and dressed antiseptically. The man sat up in bed and ate a light breakfast the next morning, and made a speedy and uncomplicated recovery. I meet him quite frequently in the streets and he seems well and hearty, and so expresses himself.

This case again illustrates many interesting points in head injuries:

1. It illustrates the danger of overlooking such injuries where we have to deal with other grave injuries in the same person. It also illustrates what has often impressed me before—viz., the importance of chemosis of the ocular conjunctiva as a frequent symptom in fracture of the orbital region; not that it is necessarily a sign of grave fracture or that any great harm will ensue, but I would be very cautious, even where the history given is of slight injury, in making a diagnosis, or especially in treating such a condition lightly. When we reflect how numerous and fragile are the bones entering into the formation of the orbital cavity, it is easy to imagine how often they may be fractured and yet escape detection, and thus prove a source of subsequent mischief.

2. It illustrates the necessity of being prepared for secondary or even tertiary operation in cases such as the above, otherwise death will almost surely follow. I do not know whether my course concerning the clotted blood was the best, but considering all the circumstances I think now, as I did then, that it was. If the man had not had an abscess he would have been all right, as my second examination showed. If the operation had been an immediate one there would be no question as to its removal, but with the present opinion as to the tendency of dried blood to become contaminated in the presence of pus, I perhaps did the best thing possible.

Taken together, these two cases illustrate:

1. The frequency with which frontal injuries are followed by abscess, and the amount of damage from which recovery can be expected in this region.

2. The period of time elapsing between the infliction of the injury and the appearance of the grave pressure symptoms—about four weeks in both cases; also the danger of confounding these conditions with alcoholism and other cerebral diseases in the intermediate period. No snap diagnosis should be made of abnormal mental conditions following an injury to the head.

CASE III. *Compound Comminuted Depressed Fracture of Skull*.—A boy, aged ten years, was struck by a locomotive at a grade crossing. He did not appear to be hurt very much at first, save for a scalp wound. His physician was, however, again summoned some time after the accident on account of the boy lapsing into coma with paralysis on one side. Consultation determined his removal to St. John's, where I saw him at midnight of the day of the accident. On the train, and until the boy reached Long Island City, he remained comatose and paralyzed, but when I saw him he was lively enough, resisting vigorously all my efforts to examine his wound. Putting the boy under ether and enlarging the scalp wound, I found that he had a depressed comminuted fracture of the skull over the motor region. A piece of the outer table, the size of a silver dollar, was uniformly depressed; in addition there was a fissured shelving fracture running back from this and including the inner table of the skull and resting on the brain. I trephined the boy, elevating the circular depression and removing the splintered fragments from the depressed shelving portion. The boy made an uninterrupted and uncomplicated recovery. I am indebted to Dr. Frank Valentine, of Brooklyn, for kind advice and counsel on this case.

This case is very interesting for many reasons:

1. It illustrates the fact that a typical multiple depressed fracture of the skull may exist, coupled with a depressed circular one, and yet great difficulty be experienced in the diagnosis. Three experienced physicians besides myself saw this case, and yet could not make the diagnosis save from the symptoms. The minute the boy was placed under ether I was enabled to make the diagnosis with ease and accuracy.

2. The case is a very interesting one from the fact that the boy's coma and paralysis did not present at once, and did not persist when once present. Practitioners often meet cases of convulsion and temporary paralysis in young children after falls without any permanent results and evidently without grave injury. Yet one must be on the lookout for cases of depression such as the above.

3. It certainly illustrates that in all cases of scalp wound coupled with a history of severe traumatism thorough examination is imperatively demanded at whatever cost. Foreign bodies are apt also to be lodged deeply in the wound, particularly in railroad cases, where the particles from the roadbed surely find entrance and prove a source of septic inflammation and irritation, thereby increasing the danger to the patient materially.

CASE IV. *Compound Comminuted Depressed Fracture of the Skull; Extradural Hemorrhage*.—A policeman in the discharge of his duty struck a man on the head with his night stick, thereby smashing the whole of one side of the vault of the cranium. The fracture was multiple in all directions, with extensive depression. The man was in a very weak condition, but I trephined in two places at the top and bottom of the fractured areas. I found the whole of the extradural space filled with recently clotted blood, which I broke down and washed away; raised depressions, stopped the bleeding, established drainage, and dressed antiseptically. The man made a speedy and uninterrupted recovery. I am indebted to Dr. B. G. Strong, of this city, for valuable advice on this case.

This case illustrates one of many frequently found in practice and which are often allowed to proceed without

operative interference. It also illustrates the extensive damage that may be done to the tables of the skull and yet the parts be restored, as well as the health and usefulness of the individual.

It also illustrates the importance of trephining in these very cases, if for no other reason than the removal of the clots which form between the dura and the skull, as well evidently from the vessels in the diploic portion of the depressed areas (which are sunken enough to allow ready flow in, yet none out) as from the branches of the middle meningeal, as usually taught.

CASE V. Bullet Wound of Brain traversing the Entire Middle Cerebral Region Obliquely.—I report here briefly the case of a young man who shot himself in the left temple. The bullet entered the brain for some distance. I trephined and searched for the bullet, but did not find it. I removed the fragments of bone driven before it, however, as well as some clotted blood, established drainage, and the boy made a speedy and perfect recovery. I am indebted to Dr. P. H. Bumster of this city for advice and counsel in this case. This case I have reported more freely from a medico-legal sense in the *New York Medical Journal* for June 30, 1894.

When I trephined, my anxiety was for the bullet; but, like many other bullet wounds, the bullet was the least dangerous element present. When we stop to consider the danger of necrosis of the bony fragments, I do not believe we will hesitate to try and remove the same by operation, thereby also increasing drainage and permitting attempts at the stoppage of hæmorrhage.*

CASE VI. Punctured Fracture of the Skull.—I was called in consultation with Dr. McFarlane to see a girl, aged nineteen years, who had had a piece of thick plate glass fall from a distance on her head. We found on examination that a piece of the glass, about an inch and a half long, had penetrated her skull and was broken off flush with the outer table. I recommended her removal to the hospital for operation, and Dr. McDonald, the house surgeon, Dr. McFarlane, and myself, trephined her that same afternoon. The glass, even after the trephine opening had been made and good leverage afforded thereby, was so firmly imbedded that it was very hard to dislodge, and the pointed end had already begun to erode the dura. She made a speedy and uninterrupted recovery.

This is a very interesting case from many standpoints, and I suppose it is properly classed under the head of a punctured fracture of skull, and therefore was imperatively an operative case. Many other materials can be responsible for the same accident, but evidently the safest course is in trephining. The temptation in this class of cases to extract the article without trephining (cleansing the best way possible and then trusting to Nature) is very great. The dangers, however, are obvious—viz., necrosed fragments of bone, hidden hæmorrhage, damage to brain and membranes, with consequent inflammation—all of which are obviated by primary trephining.

CASE VII. Depressed Circular Fracture of the Skull, including Inner Table.—A young man was thrown against the sharp projecting end of an iron barroom railing during a scuffle.

Examination by Dr. McDonald, at St. John's Hospital, revealed a circular depressed fracture over the motor area, into which a finger end could be introduced. Trephining fully confirmed this diagnosis, and showed splintering of the inner table of the skull, with slight laceration of the dura and meningeal vessels. The boy made a speedy and uncomplicated recovery.

This case was puzzling to me for a while, from the fact that the patient insisted that the injury had been caused by an ordinary beer glass thrown at him without cause. This was proved false at the trial, reputable witnesses testifying that the patient was thrown by the bartender after he had attempted an assault on him (the bartender) with a can which he carried. This illustrates what little reliance can be placed on the statements of people injured in this way. An example more convincing will be found in a case I reported for the *New York Medical Journal*, June 30, 1894.

Taken together, these three cases illustrate the almost positive indications for operation, as the inner table is usually comminuted. I am enabled to present to your honorable society the skull of such a patient in which Nature has partially effected a cure. The study of the specimen illustrates far more than can any words of mine the necessity for operation in this class of cases.

CASE VIII. Epilepsy following Depressed Fracture of Skull.—A man of forty years presented himself to me, requesting operative relief for epilepsy. Some seven years previously he had been caught in a factory belting and hurled against a ceiling, sustaining extensive injuries, including fracture of the skull. His family history for two generations is excellent, and he never had epilepsy until three years after the accident. The attacks have been occurring nearer together until he can not work, owing to their constant occurrence. His mental state is very bad; he dreads insanity, prefers death, contemplates suicide, etc. His hearing and sight are very bad, attributed to the same cause. His epilepsy is of a peculiar character, accompanied by immoderate laughter and a tendency to run violently forward. I placed him under ether to make an examination and to operate if deemed proper. Finding a place on the skull that seemed depressed slightly, I trephined there with good results as to sight and hearing; but the fits returned, with their peculiar characteristics, after four weeks.

This case illustrates the result of neglect in treatment in cases such as have been described, and is only one of a number I now have under observation. It also illustrates the temporary relief afforded by the removal of only a three quarter-inch button of bone. The relief afforded to this man, and his happiness, can not be described; it is only to be regretted that it should not be permanent. I hope to operate on this man again, however, as I suspect he has larger and more serious lesions in the occipital region, including possibly the inner table. I am now studying the localization in his case. In a man at forty years I think it wiser to make repeated small operations than one very large one, especially in obscure cases of long standing.

CASE IX. Cerebral Softening; Atheroma of the Pia Mater; Atheroma of the Vertebral and Basilar Arteries.—I was called to see a man in consultation whom five or six physicians and surgeons thought had a gumma of the brain in the right motor region. He had been treated medically without avail, and it

* I see this boy frequently, and he is in good health and spirits, working every day.

was thought that surgery might aid him. Deeming that the conclusions of the physicians might be right, and the man being evidently destined to die shortly if unoperated upon, I trephined. Beyond uniform *bulging* of the brain and an excessive œdema of the membranes, I found nothing to indicate a tumor of the cortical area, having made a digital examination of that side of the brain in all directions. The man died the following day, and an autopsy was made with the following results: Brain uniformly soft, and membranous vessels hyperæmic. No fluid in the ventricles or their connecting passages. No localized areas of yellow or other softening, although cortical parts seemed softer. No hæmorrhages. I systematically examined the pons, the cerebellum, the medulla, the internal capsule, and the external convolution and fissures for any tumors, growths, or ruptures without success. The pia mater covering the pons and medulla oblongata was thickened to a bony consistence, and the vertebral and basilar arteries thickened in atheromatous plates.

This case is very interesting from the fact that it illustrates the difficulty of diagnosis in such cases. Personally I thought the case before operation to be one of decussating paralysis with some tumor of the pons and medulla, but the weight of opinion was against me from focalization, and I must admit justly so, yet the autopsy would serve to show that my inference was nearly a correct one. The condition could probably be accounted for by cerebral softening involving the motor area, yet there was nothing especially characteristic of this found on autopsy; or, on the other hand, by pressure on the pons and medulla as the cause of the paralysis and general cerebral softening as the cause of the general symptoms. I am not qualified to settle this question, but simply state the facts as a contribution to the subject.

CASE X. Fracture of Base, Rupture of Middle Cerebral Artery, with Intradural Hæmorrhage, and Laceration of Brain.—A vigorous man, aged twenty-seven years, was accidentally thrown backward from the rear step of a trolley car to the pavement, striking the back of his skull.

He was brought to St. John's Hospital, where Dr. McDonald made a diagnosis of fracture of the base of the skull. He had unequally alternating pupils, was bleeding from the nose and ears, had œdema of the lungs, and was in general collapse. No external evidence of fracture of the skull, nor, in fact, any bruising or swelling could be discovered, although bystanders stated that "they heard the skull crack at the moment of accident." The man partially rallied from his unconsciousness the following day, but was very irritable and delirious. About the fourth day he again became more lethargic, and symptoms of compression set in. On the morning of the fifth day slight paralysis of the left leg presented. An additional diagnosis of laceration of middle cerebral artery with intradural hæmorrhage was made, and immediate trephining confirmed this diagnosis. Clot partially liquid, save over accepted leg center, where it was found firm and hard. Evacuated clots, stopped hæmorrhage, and found that there was extensive laceration of the brain in temporo-sphenoidal lobes of the same side. Washed thoroughly; dressed antiseptically. The man died that same night.

Autopsy.—Vessels of the brain and membranes uniformly enlarged and congested. No hæmorrhage on left side, intradurally or extradurally, nor in occipital region of skull. Extensive laceration of brain in temporo-sphenoidal lobe of right side, also at base of brain corresponding to the sella turcica of the sphenoid. The crista galli of the ethmoid was fractured and torn away

and found clinging to the membrane. There was a fracture of the base of the right side, beginning at the superior border of the occipital bone, extending downward over the petrous portion of the temporal, then irregularly through the sphenoid and ethmoid bones. I am indebted to Dr. John Byrne, of Brooklyn, the consulting surgeon at St. John's, for valuable advice and counsel on this case.

This case is a very interesting one and illustrates many points.

1. It shows how important the occurrence of a period of consciousness and a subsequent relapse into unconsciousness is in the formulation of the diagnosis in such cases. Contrast with Cases I and II for abscess.

2. It shows how extreme can be the damage in such cases without any visible external evidence save the general symptoms.

3. How the brain can be lacerated and torn at points remote from the site of the infliction of the injury, and how this increases the difficulty in diagnosis when later operative measures are being considered.

4. It brings up the question whether it would not be wise to operate in such cases at once if the shock be not too profound—for how else can the products of the injury be removed? These cases are unfavorable at best, and will tax the judgment of the attendant severely.

5. The persistent bleeding from the right ear impressed me as to the exact nature of the case long before the focal symptoms manifested themselves. It is also interesting to note that the blood clotted hardest and symptoms manifested themselves earliest at a point remote from the injury—that is, at the vertex over the leg center.

6. In this case I believe the actual damage was done to the brain by the fragments involved in the broken base, although at the autopsy they were found perfectly approximated.

I will briefly mention some technical points that impressed me in the performance of these operations and which may be of service to others having similar work to do.

The extreme blood supply of the scalp, although it favors repair, renders the parts very sensitive to examination. Fractures and depressions may be some little distance away from the wound, and with a history of severe traumatism examination under an anæsthetic is imperative.

In four of these cases in which recovery occurred the patients were under the influence of alcohol when injured, and no complications ensued. Personally, I think alcoholic cases most often require operation, for when they are neglected complications are more liable to follow. I would also state that in these cases I have given alcohol moderately for several days after the operation.

It is hard to stop the extensive bleeding from the scalp in certain situations by forceps to individual vessels. It is better to clamp the whole back of the scalp at several points, and by the time you have removed the button there will be little bleeding. One objection to the plan is that the scalp being very thick, when the forceps lock tightly and have, as they usually do, corrugated blades, they injure the scalp severely, and this is a source of danger, I

believe. I think spring catch clothespins, if available and clean, would answer the purpose better, although I have never tried them. Certainly anything that mangles the tissues is a source of danger.

Watch the urine of patient when unconscious, and have it drawn every six hours. This is more apt to be overlooked than some more formidable complication, yet it is very important.

It is recommended to operate with the patient in a semi-supine posture. This is all right if you have plenty of assistance and an adjustable table. For ordinary operators it is better to have the head on the table, and if a little care is taken the extra blood flow will not be so great. One can also avoid many of the larger veins of the scalp by making the flap with discretion and a view to their avoidance.

The dura is recommended to be taken up by a toothed forceps. This I have found hard to do; but careful incision here is not so difficult nor seemingly as dangerous as into the peritonæum in abdominal operations, nor into the sac of a hernia, for instance. A good way to do is to make a slight nick in the dura with a knife, then carefully force some small, semi-blunt instrument through—a grooved director, for instance.

It is recommended to make and elevate a flap of periosteum from the skull equal to the skin and fascia flap and raise it with them. This is easy of accomplishment where the skull is smooth, but where rough or ridged often impossible. Hence time is lost in attempting it in some situations, as it becomes frayed and ragged and only suffers necrosis afterward. The unevenness of the skull will in many instances increase the difficulty of starting the trephine. On smooth, even surfaces all will be easy. This applies to a three quarter-inch crown trephine, and the difficulty would seemingly be increased with a larger one. An unfiled trephine will also keep one back some; but I have operated on nine cases successively without refiling. Patience is necessary. If the trephine works poorly, it is more apt to be due to one of these causes, or to permitted wobbling of the patient's head by the holder of the same, than to any fault of the operator.

I have found the characteristic cracking sound mentioned to be the surest test as to when the trephine has penetrated deep enough. By making a little lateral pressure on the trephine after it enters the diploic tissue this sound can usually be elicited. I have worked with a three-quarter inch trephine and enlarged with an ordinary rongeur. I think it would be well to have also an inch-and-a-half trephine, but when not at hand the small one answers for all purposes with the aid of the rongeur. The judgment of the surgeon will decide which of the two trephines shall be used when two are available; it would be manifestly useless to make an inch and a-half hole in a man's skull where a three-quarter-inch one would do; when in doubt I think it better to use a small trephine, make an examination, and enlarge if it prove the right spot; if not, try another place as judgment dictates. The pin of the trephine has been a source of difficulty with me; especially did this seem so where the skull was uneven. I found, however, that I could save time in such situations

by not attempting to use the pin, but by gradually working a groove by rotation of the trephine. Do not forget when using the trephine to lift the pin after the establishment of the groove; it may serve to do damage, although in one case where I neglected this precaution all went well, and the pin saved me the trouble of an elevator, as the button of bone came away with it when I raised the trephine to examine the depth of the tract. I have used no bone brush; I simply wash away the bone dust with an irrigation of warm water. A bone brush is apt to be dirty unless you use a new one each time. I suppose a wire one might be kept clean and be very useful, but I have never tried it.

Do not use strong bichloride solution in the dressings, as it will almost surely blister the shaved scalp. Do not be surprised at quite a little discharge on the dressings after several dressings, as some portion of the edges of the opening in the bone must be denuded of periosteum and hence liable to discharge some. Usually I have dressed the wound every second day for a week, then every three days for several weeks. I have shaved the entire scalp when opportunity offered, but in other emergency cases have simply shaved the region to be operated upon. A little care will keep the field clean, especially if one does not use too many instruments. It is to my mind better to operate on a partially shaved scalp when indicated than not at all. When a patient is delirious it is very hard to shave his scalp entire, as any one can testify who has tried. When patients are very weak the extra time necessary to shave the head completely and while under ether is of very grave importance to them. It is better to shave the entire head when the judgment of the operator indicates that it can be done without much additional danger to the patient.

I have found it very hard to mark out the site for operating on skulls with pins and nails as recommended. I have tried cutting at the apex of two oval flaps first, then inserting the nail and completing the flaps, but the nails usually fall out. If this happens the number of small bleeding points on the bone will confuse one, as any one of them may be taken for the point that the pin seemed to mark. Semi-oval flaps seem to me to be the best, for you never know which way you have to enlarge until you can freely examine the bone. Again, you can bring your flaps fairly well into their original position after the bone has been exposed, and estimate the place for the insertion of the pin very nicely. A little above the center of the temporal ridge and on a line over the top of the ear will yield a fairly good opening for any kind of work for the motor area or for hæmorrhage from the middle meningeal or cerebral. Of course, there are many systems, but they are puzzling and deceptive; dropping a line at right angles from an imaginary line running through the center of the vertex may be all right, but when you put it into practice you will find it marks a place very much according to what position the man's head lies on the table. The measurements, no doubt, are best in the hands of the designers; several tested, and yielding fairly even results, I have found to be the safest, although in Case X I cut directly down on the middle meningeal branches and directly over

the cerebral by the simple measurement of the eye. Any kind of a flap seems to heal nicely, and going down too near to the top of the ear for a flap increases hæmorrhage. I prefer to leave the flaps fairly well opened until several dressings, as then in case of complication you will not be tortured with thoughts of what is going on within, but can see. This was well illustrated in Case II. The flaps will readily heal together even after many days' separation.

I have trephined immediately over branches of the middle meningeal arteries three times without any bad result, and tied them off in the dura when necessary. This presents no particular difficulty, and the same rule holds as in arteries elsewhere, only that you tie doubly and cut between. A good way is to make an incision on either side of the artery in the dura, then pass a curved aneurysm needle armed with catgut underneath the artery.

While the impressions made upon the inner table of the skull by these arteries would lead one to believe that the saw of the trephine must come very close to them and thereby be in danger of injuring them, I have not found such to be the case. The dura is usually well removed from the inner table of the skull when it is opened, and with a little care no harm can follow, although here as elsewhere it is well to be careful. In many books you will find it stated that these arteries will be found in the grooves; this must be so at times, but I am convinced they will not usually be found so. The fact that they carve channels for themselves in the bone at times, however, forcibly illustrates how much pressure must be exerted at times by the brain on any depressed fragments of bone; hence the great danger of leaving them. It also possibly illustrates to my mind why epilepsy and other phenomena are intermittent when following such injuries. In the case where there was such extensive œdema of the brain, also in the case of intradural hæmorrhage, the trephining was done over these arteries yet presented no difficulty.

It is recommended to make the incision in the dura some little distance from the marginal opening in the bone. This is meant more especially where there has been damage to the brain, and to offset the danger of hernia cerebri. I do not see how this can be done and the dura then sewed up, for these cases usually require drainage. I think it would be better to make a crucial incision across the dura, insert a drainage-tube, and stitch as far as possible; leave flaps well open over wound and then stitch the edges of dura when the tube is removed. Or the four ends of the dura left by the crucial incision might be knotted with two strands of silkworm gut which are to be left sticking out of wound; when the necessity for the drainage-tube has gone by, they could be knotted together with partial benefit. My failure to see how the first mentioned plan may be successfully carried out may be due, however, to my not fully understanding the method recommended. I am sure either of the two ways mentioned by myself will answer well in ordinary cases. I have found the toothpick serviceable in two or three cases of diploic bleeding. I found also by trying to cut it off flush with the bone you are apt

to dislodge it. So I have now left it long and wrapped a little gauze around it. This has the advantage that the wood either comes away after the bleeding has ceased, or can be taken away in the first dressing.

I have presented these cases somewhat in detail, being convinced of the growing importance of this class of surgery, and the paucity of general literature as compared with that of the abdomen, for instance. Again, there will be variations in the nature of the cases and in the methods of operators, and the discussion and presentation of such cases are of importance. Especially is this true when we find that the greatest number of deaths from accidents in the city of New York are charged to fracture of the skull or some of its consequences. Every one knows the standing joke the metropolitan press makes of this subject in their editorials, and while mistakes will be made even with care most certainly occur from lack of the same on the part of the attendant. There should be some law passed concerning the exact disposition of accident cases of suspected head injury, even when the person injured has been suspected of drinking. Even this morning I read of a man thrown from a wagon on the east side of New York city, and who was refused treatment by the ambulance surgeon on the score of "alcoholism." He was taken to the station house and died this morning. This is a common story and usually indicates fracture of the skull with hæmorrhage. I am sure that these accidents and complications must be as numerous in the country and town districts as in the cities, and no doubt often go unrecognized and untreated. I present these cases also especially as they have been worked out and carried to fairly successful issues by one who has had only general surgical and medical work to guide him, and no elaborate or complicated tools for the performance of such operations; it is really the judgment displayed in making the diagnosis and the following of the rules laid down by the masters of this subject that will determine results rather than any particularly brilliant operative methods. Caution is imperative here more than in any region of the body; yet when a fair conclusion is reached as to the necessity of operative interference, one can proceed with more reason and assurance of being right than in any other province of surgery. To the unknown author of *Brain Injuries and their Treatment*, in the *American Text book of Surgery*, my heartfelt thanks are due, and I advise every one having emergency cases to deal with to carefully study and restudy the same. My thanks are also especially due to Dr. P. J. McKeon, of this city, my colleague on the visiting staff of St. John's Hospital, whose long experience in this class of cases and his studies of the same have proved him a valuable and scientific counselor. I am also indebted to Dr. Alexander McDonald, the resident physician and surgeon at St. John's, who deserves equal credit with myself for the operative measures undertaken; also to the Sisters of St. Joseph, especially to Sisters Mary Dennis, Hilda, and Johannes, and to Mr. Kelly, to whose subsequent care and good nursing and attention the successful issue in many of those cases is certainly in a great measure due.

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THE DIFFERENTIAL DIAGNOSIS OF TRAUMATIC INTRACRANIAL LESIONS.

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(Continued from page 785.)

II. SUBARACHNOID SEROUS TRANSUDATION.

In place of a hæmorrhage a subarachnoid serous effusion is sometimes encountered which is not of inflammatory origin. I first called attention two years ago to a special contusion of the membranes as the immediate cause of traumatic arachnitis. Such a contusion may occasion either a simple meningeal hyperæmia, a pial hæmorrhage, a dropsical subarachnoid serous effusion, or some grade of meningeal inflammation.

The dropsical transudation is not of frequent occurrence, and perhaps not easily distinguished from a low grade of inflammatory exudation. If it occurs over limited areas without subarachnoid clot, and without opacity of the arachnoid membrane, or other evidence of the inflammatory process, there would seem to be little doubt of its nature. All these conditions rarely concur, but there are at least three such instances in my later series of cases, and in two of them the very early fatal termination, within a few hours only, corroborated the opinion formed from necropsic examination. This œdema, like simple hyperæmia, is found to exist in the presence of more serious organic changes, so that it is impossible to connect it with symptomatic conditions.

III. ARACHNITIS.

The impression conveyed by many surgical writers is that traumatic arachnitis is of rather frequent occurrence, and a constant menace in the convalescence of all cases of intracranial injury. My personal observation has led to a different conclusion. If serous effusions of positive or probable congestive origin, and a limited number of meningeal inflammations which were without apparent influence in the progress of other and directly fatal lesions, are excluded, there remain but thirteen cases in which arachnitis was undoubtedly existent and at the same time influential in compassing the final result. These comprised six in which the effusion was purulent, and seven in which it was serofibrinous, in one of which the presence of the *Streptococcus pyogenes* was demonstrated by culture. In one of the acute cases the purulent formation was the extension of a more profuse pyogenic process along the course of a drainage-tube which traversed the brain substance, and in another it was an equally direct extension from an infected compound fracture which lacerated the membranes and cerebral cortex. In both, the symptoms were merged in those of the primary lesion. The number of cases useful for purposes of analysis is thus reduced to eleven, in none of which the inflammatory process seemed to be propagated from a localized injury of the brain or membranes. They are too few in number to afford a basis for any wide generalization in either symptomatology or diagnosis. The course of traumatic arachnitis, however, is not unlike that of the idiopathic form, and conclusions are thus less

dependent upon direct observation than in the study of other intracranial lesions. These cases are at the same time in sufficient number to make their analysis important and to justify an epitome of their already abstracted histories.

CASE I. Acute.—Primary symptoms referable to depressed fracture, subcortical laceration, and general contusion. On the second day, patient irritable and somnolent. Temperature, 102°; bone elevated. Fourth day, temperature, 105°. Fifth day, patient delirious, restless, and sensitive to external impressions; surface hot, pupils moderately dilated and slow to act, and coma which continued till death on the seventh day. Temperature varied from 104°+ in the morning to 105°+ in the evening; pulse and respiration much increased in frequency.

Lesions.—Fracture of base and vertex; lacerations, pial hæmorrhage, and contusions of brain and membranes; purulent effusion over occipital and posterior parietal lobes on both sides, and in interior occipital fossa of the side of injury.

CASE II. Acute.—No primary symptoms. On second day, temperature, 101.6°; and afterward 99°+ till the tenth day, when without the occurrence of intervening symptoms it rose to 101°+, on the next day to 104.6°, and afterward varied from 103° to 104°+ till the fifteenth day, when it began to rise progressively and reached 107.4° on the sixteenth day shortly before death. On the tenth day, coincident with the rise in the temperature, the patient became restless and slightly delirious; on the eleventh day he had a slight chill and increased delirium; on the fourteenth day there was posterior cervical rigidity, and on the fifteenth a slight general convulsion. The pupils and respiration were normal, pulse was 104 to 112, and mental condition sluggish.

Lesions.—Fracture of vertex which was confined to external table; purulent effusion over both frontal lobes, encroaching upon parietal and extending into median fissure.

CASE III. Acute.—Patient in alcoholic condition; restlessness succeeded by stupor, occipital pain, with epigastric pain and vomiting. Temperature on admission, 102.6°; next day, 105°; and third day, 103.8°; pulse moderately accelerated, 120 to 84; respiration not above 24, and pupils normal.

Lesions.—Subarachnoid serous effusion; much purulent effusion anteriorly upon both sides of the vertex, but mainly upon the left.

In each of the previous instances the presence of the streptococcus was demonstrated by culture.

CASE IV. Subacute.—Primary symptoms from subcortical laceration and general contusion, which subsided through second and third weeks. Temperature fell to below 100°, and patient became asthenic. Three days before death he became unconscious, and the temperature rose to 100°+, and on the next day to 103.8°; then varied from 103° to 104.8°, and later rose progressively to 109°. There were alternating periods of rational intelligence and of wild delirium up to the time of final unconsciousness.

Lesions.—Subcortical laceration and excavation of an entire frontal lobe, and excessive general hyperæmia; serous effusion over all parts of the brain with well marked arachnoid opacity.

CASE V. Subacute.—Primary symptoms of general contusion and of lesion of the motor area. Fourth and last week, mental apathy replaced by mild delirium; three days before death temperature rose from 99° to 104°, declined to 100° on the following day, and again rose to 104°. Death occurred on the twenty-eighth day.

Lesions.—General contusion and a small superficial cavity from a local contusion in the leg area of one side; serous effusion compressing both frontal lobes.

CASE VI. *Subacute*.—Primary symptoms of cerebral injury; temperature did not exceed 99° for the first week, then rose suddenly to 102.8° to 103.2° , and afterward varied irregularly from 99° to 104° ; pulse and respiration only became frequent at the last; mental condition alternately stupid and delirious from the beginning. Death occurred in sixteen days.

Lesions.—Fracture of the base, laceration of both frontal, and of one temporo-sphenoidal lobe; subarachnoid clot in occipital region; general serous effusion with arachnoid opacity.

CASE VII. *Subacute*.—Primary symptoms from cerebral contusion which continued three weeks. Temperature in second and third weeks, 98.5° to 99° +, with progressive mental improvement. In the fourth week the mental condition deteriorated. On the twenty-third day, temperature, 101° ; in the four days following it varied from 98.5° to 101.6° , and the pulse was frequent; on the twenty-seventh day, temperature rose from 100.6° to 106.6° without remission, and in the right axilla was from half a degree to a degree and two tenths higher than in the left; on the twenty-eighth and last day it was 108° , and the pulse, previously frequent, was from 54 to 74. The respiration was accelerated during the last two days, and the patient became irritable and restless.

Lesions.—Fracture of the base, several necrotic contusions upon the superior surface of the prefrontal lobes; general contusion with œdema; and general serous effusion over superior and lateral surfaces of the brain.

CASE VIII. *Subacute*.—Primary symptoms from parenchymatous injury. Temperature normal from sixth to ninth day, and afterward much of the time subnormal till the thirteenth day, when a severe chill was accompanied by an elevation to 101° +. A second chill on the nineteenth day was followed by a progressive rise of temperature to 105.5° at death on the twenty-first day. After the second chill the patient grew mentally sluggish and became weaker; pulse and respiration were frequent.

Lesions.—General contusion of the brain with œdema; subcortical laceration of a frontal lobe; and serous effusion with arachnoid opacity over superior and lateral cerebral surfaces.

CASE IX. *Subacute*.—Primary symptoms, those of general contusion, followed by an intercurrent bronchitis. On the thirteenth day, occipital headache, which became general; somnolence and irritability; temperature, 101° to 104° , and on the eighteenth day, 105° , with delirium and post cervical rigidity; later, increased delirium and somnolence, with symptoms referable to implication of cranial and spinal nerves; progressive emaciation; lack of urinary and faecal control; rapid and insufficient respiration; unconsciousness and death on the thirty-first day. Temperature from 100° to 104° ; pulse, 64 to 90; axillary temperatures variable, and when unsymmetrical, more frequently half a degree higher on the side opposite original injury.

Lesions.—Fracture of the base, thrombi in the lateral sinuses, general contusion of the brain with œdema; turbid serous effusion in the ventricles and at the base; thick membranous effusion over the pons, medulla, inferior surface of the cerebellum, and in the fissure of Sylvius; fornix much softened, and trivial lacerations of one temporo-sphenoidal lobe. The *Streptococcus pyogenes* was discovered in cultures of the membranous effusion.

CASE X. *Subacute*.—Primary symptoms of general contusion; unconsciousness which merged in final coma; restlessness; pupils widely dilated but responsive to light; urine retained; left side temporarily rigid; right side paretic; pulse and respiration continuously frequent; temperature on admission normal; subsequent variations: 102.2° , 101° , 101° +, 102° , 105° , 104° +, 102° +, 100° +, 101° +, 102° +, 105° +, 106° : one hour post mortem, 106.2° . The axillary temperatures were symmetrical for forty-eight hours; then, with a rectal tempera-

ture of 102.6° , temperature in the right axilla was 103.2° , while in the left it was 100.4° ; and at fifteen minutes' intervals rose to 101.4° and 102.8° in the left without change in the right. At this time the left upper extremity and foot were intensely cold to the touch. Death occurred in fifty-three hours.

Lesions.—General contusion with œdema; laceration in substance of the fornix; small pial hæmorrhage upon the inferior surface of the cerebellum; small hæmorrhagic serous effusion in one lateral ventricle, and large serous effusion with arachnoid opacity over the occipital and posterior portion of the parietal lobes.

CASE XI. *Acute*.—Primary symptoms of fractured base; temperature high from the first day; from 104° to 105.6° till fourth and fifth days, when it receded to 102.8° to 101° , and again rose to 104° to 105° on the sixth and seventh days; muscular twitchings of the right side of the body and left hemiplegia and hemianæsthesia on the sixth day; general convulsion beginning on the right side preceded death, which occurred on the seventh day.

Lesions.—General subarachnoid purulent effusion most copious over the left frontal lobe below the origin of the fracture.

It would seem impossible to determine *a priori* the circumstances under which an arachnitis is likely to follow meningeal injury. The alcoholic habit existed in but a minority of cases, the previous constitutional condition was often unimpaired, and the age ranged from early youth to past the middle period of life. The coexistent lesions were diverse, and had no obvious relation to the changes which the membranes had suffered. Fractures of the skull, cortical or subcortical lacerations, hæmorrhages, or notable general contusions were variously discovered upon necropsic examination. Some degree of meningeal implication is probably almost invariable in intracranial injuries, but these cases fail to afford a clew to the immediate conditions which occasionally favor the development of arachnoid inflammation. The time of invasion was equally uncertain; it was in some instances immediate, and in others delayed for weeks after the reception of the injury. The interpretation of symptoms had therefore to be made without material aid from considerations of time or circumstance.

In three cases the arachnitis was primary, in another its initial symptoms were so insidious as to fail of recognition, and in the remaining seven its invasion was late and sharply defined. In the larger number, which may be considered typical, the course of symptoms referable to complicating lesions was interrupted by a distinct and somewhat sudden elevation of temperature accompanied by an evident change in the general condition of the patient. He became irritable, restless, delirious, or somnolent, and in one instance suffered a severe chill, though the effusion did not prove to be of purulent character. The subsequent range of temperature was erratic. It was marked by variations from day to day or from hour to hour, not usual in other intracranial lesions. The arachnitis was so constantly associated with other grave structural alterations that it is impossible to demonstrate its exact relation to temperature, but if my observations in these few cases which were capable of verification may be supplemented with others made in recovering cases which I had reason to believe were arachnoid inflammations, I should infer

that this variation was characteristic and ranged from $101^{\circ}+$ to $104^{\circ}+$. In the majority of verified fatal cases the temperature immediately before death was from $105^{\circ}+$ to 109° ; but in each some lesion of the brain substance existed in which a very high temperature was to be expected. In one exceptional case without such complication, in which it reached 107.4° , the effusion was purulent. Whether or not these fluctuations of temperature are due to a secondary implication of thermotaxic centers situated in the cerebral cortex, as suggested by Hale White, is immaterial in a study of symptoms as related to diagnosis.

After the invasion, and aside from peculiarities of temperature, the progress of the diseases was especially characterized by continued manifestations of cortical irritation. Some grade of delirium persisted in almost every case, and restlessness, irritability, or extreme sensitiveness to external impressions was often marked long after consciousness was finally lost. General or post-cervical muscular rigidity, in one instance a slight general convulsion, and in another a chill, were further indications of nervous excitation. They all, with the exception of the case of basilar inflammation, terminated within the week, and rather from asthenia than from coma the result of pressure. The pupils were oftener normal than otherwise, and the pulse and respiration failed to reflect the existing inflammatory process; moderate acceleration of the pulse and very slight, if any, increase in the frequency of respiration seemed to be the usual conditions. It can not be said that there was any sharp contrast in symptoms which indicated the character of the effusion. In one of the acute cases there were classical symptoms of sthenic inflammation, but there was no chill; in another, which began with a chill, the subsequent symptoms were no more pronounced than is common in the subacute form; while in the third and last, the invasion and progress of the inflammation were remarkably insidious.

The question of infection is uncertain. There was fracture of the vertex in two of the acute cases, and a scalp wound in the third; and in the case of basilar arachnitis, in which the *Streptococcus pyogenes* was discovered in a large sero-fibrinous effusion, there was a fracture through the internal auditory canal and rupture of the tympanum. There was no more than a possibility of direct infection in three out of the four; the wounds were maintained in an aseptic condition, and in the absence of an evident pyogenic process there was no proved pathogenic relation between the external lesion and the character of the internal inflammation, and no good reason to assume that it existed; if in the fourth case the access of the pyogenic germ is more readily comprehensible, the general history is better interpreted upon the supposition that its development was in the usual course of idiopathic secondary serous inflammations in prolonged disease, with the added predisposition derived from a previous local contusion.

I am indebted to the courtesy of Dr. H. M. Biggs for notes of eight unpublished cases of infective purulent arachnitis which were not of traumatic origin. They exhibit the same irregular fluctuations of temperature and

the same varied manifestations of cortical irritation which were observed in traumatic cases of either form which I have collated. They are of interest here as confirmatory of the proposition that the symptoms of arachnitis are not necessarily modified by its cause or grade.

It is clear from this analysis of meningeal hæmorrhages and inflammations that the attempt to crystallize their symptoms with those of depressed fractures, and to formulate in a single word—compression—a resulting condition, is futile and misleading. It is no more defensible than a former practice of grouping organic diseases under the common name, dropsy. These several results of cranial injury indicate entirely different pathic conditions, and their external manifestations are more marked in their differences than in their resemblances. Even the cerebral compression which they are supposed to characteristically produce is in the majority of cases absent or replaced by a still more characteristic irritation. When it is further attempted to discriminate these artificially consolidated lesions from injuries of the brain substance by antithetical tabulations of symptoms, the possibilities of error are arithmetically increased. It is practicable from an examination of the cases which I have cited to demonstrate the unreliability, both positively and negatively, of each assumed individual diagnostic symptom in any one of the tables which are scattered through surgical text-books. The importance of a statement which I have previously made that a proper classification of morbid conditions must be based upon structural alterations, and their diagnosis established by careful analysis and comparison of resulting symptoms, is warrant for its repetition. The diagnosis of fractures, meningeal hæmorrhages, and meningeal inflammations from brain lesions in the manner to which I have excepted fails in both particulars. A defective classification has been supplemented by an inaccurate analysis of symptoms, and faulty generalization has resulted in prevalent confusion.

IV. LESIONS OF THE BRAIN SUBSTANCE.

The injuries which the brain may suffer are general and local: a diffused contusion or a limited lesion, which may be either a contusion or a laceration. The analysis of cases which I have made demonstrates the exceeding frequency of visceral lesions. I have intimated the probability that some degree of general contusion always exists in intracranial injury, even though some other lesion may be paramount. At the time of my earlier observations it was only noted when its evidences were strikingly apparent, and even at a somewhat later date only when they were more than ordinarily well pronounced; yet with these limitations it will be found recorded in more than fifty per cent. of the total number of cases. Local contusions, on the contrary, have been of comparatively infrequent occurrence, while lacerations have been discovered even oftener than well marked structural alterations of a general character. Meningeal contusion, independent of recognized visceral injury, has been encountered in but three instances, in each of which a fatal arachnitis resulted. Epidural hæmorrhage, in which the effects of violence inflicted upon the cranium had not been extended to the brain, has not

been once disclosed. Some implication of the brain, therefore, may be regarded as practically assured in all cases of cranial injury.

In the study of brain lesions it is necessary to determine not only the symptoms they may have in common, but if possible the existence of others characteristic of individual forms.

1. GENERAL CONTUSION.—Notwithstanding the very constant occurrence of general contusion, it so rarely terminates fatally when uncomplicated by other structural changes that opportunity for observation of its distinctive symptoms is much more limited than in cases of hæmorrhages and arachnites. I am enabled, however, to present six cases in which no concomitant lesion existed, or in which, if present, it was so trivial that it may be fairly assumed to have had no influence in the production of symptoms. In one there was absolutely nothing beyond the general contusion; in two there were also limited and non-infective dural thromboses; in another there was a single small extravasation into an optic thalamus, and in the other two there was a slight cortical laceration and correspondingly unimportant cortical hæmorrhage. In all there was a more or less intense general hyperæmia, which was sometimes more strongly pronounced in some particular region, as anteriorly, posteriorly, at the base, or in one hemisphere, than elsewhere. In three cases the pia was notably engaged; in three there was well-marked or even excessive general oedema; in four, thrombosis of the minute vessels, which generally characterizes contusion, was a pronounced feature. I regard the last-mentioned condition as a manifestation of contusion, as it is habitually absent in the hyperæmia of idiopathic disease. Punctate extravasations were less numerous than is usual in the more frequent instances in which hyperæmia is associated with laceration. In those cases in which death was long deferred, the absence of inflammatory processes was verified by microscopic examination made at the time of necropsy.

The analysis of symptoms in the six cases is unsatisfactory. The few connecting links which measurably held together the cases of hæmorrhage or arachnitis have no corresponding representation. There was no uniformity either in the occurrence of individual symptoms or in their course or termination. In the single one which was absolutely uncomplicated there was no loss of consciousness at any time, till its final lapse from asthenia; in all the others it was primary and in three was permanent. There is no other individual symptom which occurred in more than half the cases cited. The pupils were dilated, contracted, or normal; the pulse and respiration were variable. It is true that delirium, mental irritability, or apathy, combined with muscular rigidity, convulsions, or some degree of paralysis, occurred in each instance save one, and in that one a profound coma from the beginning held in abeyance all mental and motor functions; but the time of their appearance and the method of their combination had no conformity to rule. Headache, persistent vomiting, and perforating ulcer of the cornea were isolated phenomena, and in one protracted case dementia preceded death.

The temperature again probably affords the earliest

indication of the intracranial condition. It was never subnormal on admission, and was never more than moderately elevated; in four cases out of five it was from 99° to 100° ; in the fifth it was $101^{\circ}+$, as it was in the sixth, in which it was not recorded till the second day. Its subsequent course was in general progressive, and with one exception attained a high degree before death ensued. Recessions were observed only once or twice in two cases which were considerably prolonged.

It is not difficult to comprehend the reasons for the diversity of symptoms, or for their irregular development, in view of the comprehensiveness of the lesion and its different degrees of intensity in different regions. The observation of the fact of regional variations is not limited to the comparatively few necropsies in which uncomplicated general contusion has been found to exist, but is even redundantly confirmed in the far greater number in which death has resulted from hæmorrhage, arachnitis, or extensive laceration. It is not unusual in case of a contusion which involves the entire brain to find that its structural evidences are emphasized in one hemisphere or in certain lobes or in certain regions; it may be in the cortex, the basal ganglia, or elsewhere. It is not more unusual to find in a largely diffused contusion that some part, as the cortex, one hemisphere, or the cerebellum, has practically escaped. All the characteristic structural alterations are alike subject to localization. The post-mortem inspections of the brain which I have directed have demonstrated also the instability of the parenchymatous serous exudation; this not only gravitates to dependent parts, but can often be freely expressed by the hand after section has been made. The dropsical effusion moves through the brain substance with the same certainty, if not with the same celerity, that it does through subcutaneous cellular tissue. There is no more reason to question the fluctuation during life in the amount or position of serous transudation or in the intensity of hyperæmia originally established by violence, than there is to doubt their often progressive increase or diminution. The punctate hæmorrhages into the brain substance are, of course, not subject to change, but I believe them to be less influential in the modification of symptoms than the conditions previously described.

These considerations seem sufficient to account for the wide variations noted in symptomatology. It is unnecessary to review the cases which illustrate the dependence of symptoms of cortical irritation upon cortical contusion of the vertex, or of pressure symptoms upon excessive general subcortical hyperæmia and oedema, or of various other combinations of symptoms with structural changes. It is quite possible that wider observation may further illumine the invasion and march of symptoms, but as these must continue to depend upon unstable conditions they are not likely even then to become fixed elements in diagnosis.

(2) LIMITED CONTUSION.—The distinctly limited form of contusion as distinguished from laceration demands but brief consideration. In the occasional instances in which it occurs in scattered areas through the centrum ovale it can afford no indications separable from those of a modified general lesion.

In its more usual form, in which it is confined to the cortex, it differs from laceration only in the extent of local injury to tissue, and the character of the symptoms will not be further influenced by the fact that the injury is a bruise rather than a wound. It is rarely a fatal lesion, and its existence is likely to be marked by the coexistence of others of greater magnitude or severity. It has been noted in but fifteen of the necropsic examinations which I have made, and in none of these had it appreciably contributed to the fatal result, and in but one occasioned recognizable symptoms. In the exceptional instance there had been no reason during life to suspect that there was a limited contusion rather than laceration.

(3) LACERATION.—I have expressed a doubt whether laceration of the brain occurs without some degree of contusion. I may add that a resultant cortical hæmorrhage, usually proportionate to the extent of local injury, and often sufficiently large to have an intrinsic value in the development of symptoms, is almost certain to exist as a complicating condition. I have failed to recognize one or both of these attendant lesions in but few instances, and from the time I began to record the full results of necropsic inspection, the accessory lesions as well as those which I regarded as essential, I have found the rule to be practically absolute. It is probable, however, when post-mortem indications of general injury are not pronounced, and laceration is extensive, with no more than moderate cortical hæmorrhage, that the significant symptoms have been derived from the local destruction of tissue.

I have collated ten cases in which laceration has been considerable, and in which cortical hæmorrhage and general contusion have been apparently insufficient to be symptomatically important. They include both cortical and subcortical injuries, variously situated upon and beneath the several surfaces of the brain, and have involved both localizing and non-localizing areas.

Consciousness was ordinarily lost in the beginning, though in two instances there was simple obscuration of the mental faculties, and in one consciousness was retained and the mental condition was unimpaired. Delirium very generally followed, often characterized by restlessness rather than by violence, or accompanied by fixed delusions. In one rather lengthened case there was a single delusion in which the patient never faltered, even at times when his intellectual poise was otherwise undisturbed. The subsequent progress of the case, when death was not an early termination, was likely to be marked by evidences of mental decadence. Irritability, convulsions, loss of fæcal and urinary control, were not infrequent symptoms. The pupillary condition was variable, as previously noted in hæmorrhages, and, with the characters of the pulse and respiration, will be made the subject of later consideration.

The examination of temperatures is quite as instructive as in any of the conditions previously studied. In two instances the temperature was not recorded; in the eight cases remaining the record is worthy of reproduction in brief:

Case VI.—103° on admission; 102° in five hours, and progressive rise to 106·2° at death in twenty-four hours.

Case XX.—101° on admission; 104·8° in forty-eight hours and for seventy-eight hours afterward; 101°+ to 102°+ for next ensuing forty-eight hours; and 107°+ at death in seven days seven hours. Rise progressive.

Case XXI.—104·8° on admission, after eighteen hours, and death in twenty-six hours.

Case XLIV.—98° on admission; 103·6°; 104·6°; 106·6° half hour ante mortem; death in nine hours and a half.

Case LII.—98·6° on admission; 104·7° in five hours; 103·8° to 103° on second and third days; 101° to 99° on fourth and fifth days; 99·8° to 101·8° till the end of the twentieth day; 102·4° on the twenty-first day; 105° on the twenty-second day; 97·5° before death on the twenty-third day.

Case LIX.—99·8° on the first day; 104·6° on the second day; 103·6° on the third day; 103·2° on the fourth day; 107° to 108·2° on the fifth day. Death.

Case LXXIII.—99·2° on admission after twelve hours; 103·8°; 104° in articulo mortis; 106° half hour post mortem. Death in ten hours.

Case C.—100° on admission, thirtieth day; 104°+ to 102° from thirty-first to thirty-fourth day; progressive rise to 107·6° at death after operation on thirty-sixth day.

These temperatures call for little comment. Their remarkable primary elevation, following recovery from shock, and in early fatal cases their rapid and progressive increase, sometimes continued even after death, with in general only brief and unimportant recessions, are in such contrast to what has been observed in hæmorrhages, meningeal inflammations, or even general contusions, that they are sufficiently striking phenomena to at once challenge and arrest attention. In a single instance in which in the last hours of life the temperature became subnormal, the exceptional fact is probably explicable by the asthenic condition finally induced by an advanced necrotic process.

A more comprehensive, and at the same time more accurate, conception of the symptoms due to laceration may be obtained from a review of the much larger number of cases in which limited destructive lesions are attended by other anatomical changes, perhaps equally important. It is only necessary to exclude those symptoms which have been found to be referable to each of the attendant lesions as they have occurred elsewhere in comparative isolation.

I have subjected to analysis forty-two cases of this type, in all of which the laceration has been distinctly marked, and in most of which the history and necropsic record have been fairly complete. An occasional case has been admitted to consideration in which historical detail has been lacking, but in which some characteristic symptom has been strikingly displayed. The region of the brain involved or the nature of the complication has not been regarded.

The primary loss of consciousness which has been observed to precede the development of positive symptoms in the history of each variety of encephalic injury, and of each combination in which they have been heretofore presented, could hardly fail to characterize this series of complicated cases in which no new form of structural alteration exists. Variations in its degree or persistence, which have

been noted in connection with other lesions, equally occur in the train of lacerations whether simple or complicated. The negative phenomena, if such a term is permissible, are indistinguishable if not identical, whatever lesion or lesions may be afterward discovered. This is readily comprehensible upon the assumption already made in case of hæmorrhages, that some degree of general contusion attends all other intracranial injuries, and that to it, in conjunction with possible general shock, the immediate effect of traumatism is to be referred. If life is prolonged, the primary morbid condition will be replaced or supplemented after a variable period by the characteristic symptoms of the co-existent lesions. In cases in which consciousness has been retained from the first, as occasionally happens, the mental condition is often peculiar; it is not that of partial consciousness or of stupor, but rather of blunted perception. The patient seems lethargic, and, if sufficiently roused, apparently comprehends simple questions in a dull way and with effort; but the effort is quite likely to fall short of his making answer; he feels and sees, but scarcely thinks. From this condition he may immediately pass through somnolence or complete unconsciousness into coma and death, or he may at once regain his mental equilibrium. In a considerable number of instances, in place of this direct solution of a psychical problem, a new series of mental phenomena are interposed between the primary unconsciousness, or the condition of lethargy to which I have referred, and ultimate recovery or death.

In the previous paper upon injuries of the head I sketched in outline certain manifestations of mental disorder which I attributed to the general class. I am convinced from further observation and more careful analysis that their significance in symptomatology should have been restricted to injuries of the parenchyma, and mainly to such of them as were of the limited and destructive variety. I spoke of these mental aberrations as of no more than "rather frequent" occurrence, but when restricted to their proper place, as indicative of the lesions which they really represent, they become more nearly pathognomonic; they exist in some degree, or in some combination, in a very large majority of the cases which survive the initial stage. I have seen no reason to materially modify the picture I then presented. In a typical case, delirium of some grade or character follows or precedes restoration to consciousness; it may be violent and simulate the alcoholic form of mania, but oftener the patient is simply restless, excitable, incoherent, or perhaps inarticulate in speech, his mind distracted by fleeting fancies, yet amenable to control. A little later he may recognize his friends, converse intelligently and coherently, and during the day and upon cursory examination appear quite rational, though still delirious and requiring mechanical restraint at night. He has delusions, fixed or transitory, and his memory is defective or entirely wanting in regard to circumstances or occurrences which preceded his restoration to consciousness. He has perhaps no knowledge of his place of residence, occupation, or family; but whatever else he may remember or forget, he is usually absolutely oblivious of all the circumstances attending his injury, and has no apprehension of his pres-

ent surroundings. His nocturnal delirium may soon disappear, and eventually, after the lapse of weeks or even months, his mind may become clear, his memory be restored, and his recovery complete. In a certain proportion of similar cases the termination is less fortunate, and some degree of permanent dementia remains. In many others, unhappily, the mental horizon never brightens after the inception of delirium, or, if at all, for a brief time only, and death is not long delayed. In another type of mental disorder a condition of apathy or hebetude follows active delirium, and is likely to be merged in final unconsciousness. In still other cases delirium is of a muttering character from the beginning, or from an early stage, and is accompanied by stupor. The occasional instances in which delirium, like absolute retention of consciousness, occurs as a primary condition probably concern the complication, general contusion, rather than the laceration.

It may be worth while to call attention to the frequent want of correspondence observed between the severity or mildness of the invasive psychical symptoms and the final outcome of the injury. A violent commencement has not always involved an answerable sequestration, and so too a good beginning has sometimes made a very bad ending; but in either instance failure to forecast the future does not necessarily imply inability to recognize pregnant symptoms. Practically the existence of the lesion has been as legibly stamped upon the histories of such cases as upon those which have run a more conventional course.

There is a peculiar irritability or sensitiveness to external impressions which I have noted as of frequent occurrence, and have ascribed to cortical injury. It is an exaggerated response to trivial irritations and disturbances which seems due less to cutaneous or muscular hyperæsthesia than to an abnormal excitability of the emotional centers. Great vexation and impatience are often manifested from slight irritation, even in the last hours of life when the patient has remained motionless and apparently unconscious for a length of time.

Aside from symptoms connected with the perceptive and intellectual centers, loss of control over the bladder and rectum is of first importance among general indications. It is impossible to estimate its numerical frequency, for if these receptacles are empty at the time the brain injury is inflicted, and if, as often happens in recorded cases, life is afterward measured by hours or minutes even, this diagnostic point is necessarily lost. If such explicable cases are excluded, it may be said to have been very generally observed in the clinical studies of laceration which I have made, though it has sometimes failed of record. It has been equally noted in the absence of any form of paralysis, and when consciousness has been retained; and though some form of mental impairment may have always co-existed, the same loss or aberration of mental power when due to other lesions has not been characterized by this particular functional incapacity. The lacerations have been both cortical and subcortical, and have involved all the lobes and all regions of the brain, so that the direct cause of this lack of control would seem to be any wound of the

parenchyma, whether or not it may be ultimately traced to some special center.

Convulsions have been of comparatively frequent occurrence in the fatal cases. I recall but one instance of subsequent recovery in which laceration was fairly inferential. In the fifty-two cases upon which thus far conclusions have been founded there were general convulsions in ten, convulsive movements in three, and general muscular rigidity independent of meningeal inflammation in two. This is largely in excess of the proportion of cases in which this symptom occurs in hæmorrhages, of which it has been supposed to be characteristic. I have never known it to follow simple general contusion even when of marked severity. I believe the pathic condition upon which convulsions depend to be distinguishable by certain peculiarities in their manifestation. In hæmorrhages they result from compression or concomitant injury of the recognized motor area. In the thirteen cases enumerated in which they followed laceration, the seat of injury was usually in the frontal or temporo-sphenoidal lobes, or in both together; in two exceptional instances, the optic thalamus was lacerated in one, a parietal lobe was wounded by a fragment of bone in an old infected compound fracture in the other. If in some cases there were additional lacerations of other lobes, they were of secondary importance and distant from motor centers. It is obvious that when convulsions result from an intracranial hæmorrhage which has relation to motor centers, they are likely to be preceded or accompanied by paralysis, as in my own cases, or in three recently reported by Dr. A. J. McCosh. If they are induced by laceration, which as it has been shown is in general frontal or temporo-sphenoidal, paralysis is an unlikely factor in the case. It really occurred in but two instances: once in the compound parietal lesion mentioned, and once in a frontal necrosis surrounding a small tumor which was only an incident in a general traumatism.

The characters of the associated symptoms—of hæmorrhage on the one hand and of laceration on the other—aid much in determining the significance of a convulsion. The temperature which precedes the paroxysm has special value since it is a very early indication of the nature of the lesion and of positive character. In every instance within my observation it has been distinctly higher than that which accompanies hæmorrhage. The immediately subsequent temperature has, of course, no diagnostic importance. I have been able to discover no absolute law which governs the invasive or initial symptoms, though the first spasmodic movements are perhaps rather more frequently developed upon the opposite side.

The paralyses and anæsthesias which may follow laceration are of great assistance in fixing its location after the nature of the lesion has been established. Their very general origin, however, in hæmorrhages, inflammatory effusions, or depressed fractures does not warrant the assumption from the mere fact of their existence that there has occurred a destructive lesion of the brain substance; but the laceration having been determined by other considerations, these conditions may be quite sufficient for localization. Their connection with laceration is exemplified in

many of the cases which I have described. The subject of paralysis and anæsthesia in general is sufficiently well understood to obviate the necessity of giving it any special attention in the present review of symptoms.

The irregularity of the pupils has not impressed me as of greater symptomatic importance in this than in other encephalic lesions. The forms and combinations of pupillary variation have been so numerous, and the instances in which no pupillary changes have occurred have been so frequent, that I have come to doubt the practical value of the indications which they afford. The ten cases of comparatively uncomplicated laceration, quoted heretofore, will serve to illustrate the inconstant relation which exists between the condition of the pupils and the nature of the brain injury. In four cases there was no pupillary change, though in each one laceration was extensive, and included in one instance an excavation of an entire frontal lobe, in two others cortical destruction of both parietal lobes at the vertex, and in the fourth a considerable laceration of a frontal lobe at the base, besides subsidiary injuries of the temporo-sphenoidal and occipital lobes, the cerebellum, and a corpus striatum, variously distributed. In two cases in which both pupils were very moderately dilated there was gunshot laceration of a parietal lobe in one, and a laceration of the inferior surface of both frontal lobes in the other. In two other cases there was slight dilatation of the corresponding pupil with laceration of the frontal, parietal, and occipital lobes in the first, and of the frontal and temporo-sphenoidal lobes in the second. In a case of laceration of the lateral aspect of a whole hemisphere there was dilatation of the pupil on the opposite side. In the final case there was contraction of both pupils attending similar laceration of the lateral aspect of a hemisphere, with slight injury of the cerebellum and a general cortical hæmorrhage. I am incapable of understanding how any general law is to be derived from the comparison of such data as these cases afford. The only generalization which I have been able to make is that the pupils are more frequently normal than in cases of hæmorrhage.

The high temperatures which characterized simple lacerations were maintained in the presence of complications. In the forty two complicated cases analyzed the initial observation was made immediately upon admission, but was not recorded as primary if some hours or days had elapsed after the reception of the injury; the ultimate observation was denominated final only when made nearly or quite *in articulo mortis*. Rectal temperatures only were noted.

The primary temperature was unnoted in two cases, was normal in one, and was subnormal in six; in the remaining thirty-three it was 99° to 100° in twelve cases, $100^{\circ}+$ in six cases, $101^{\circ}+$ in ten cases, $102^{\circ}+$ in two cases, 103.6° in one case, 106° in one case, and 106.6° in one case.

The final temperature was 109° in one case, $108^{\circ}+$ in two cases, $107^{\circ}+$ in eight cases, $106^{\circ}+$ in eleven cases, $105^{\circ}+$ in eight cases, 104.6° in one case, and $103^{\circ}+$ in three cases.

In thirty cases in which the intermediate temperatures were recorded, they were in twenty progressive and with-

out recession from the beginning to the end. In recovering cases the reduction of temperature from 99° + to normal was very slow and often extended over several months.

These very considerable elevations of temperature have been often coincident with lesions which have involved what have been described as thermo-genetic centers, and rather noticeably that part situated about the antero-inferior aspect of the corpus striatum. It is also true that laceration of any portion of the brain will be followed by a high temperature, and that the regions in which these supposed centers are situated are most subject to injury. It is therefore questionable how far the study of traumatism has confirmed in this regard the results of certain physiological investigations.

I am still unprepared to estimate the possible importance of bilateral variations in axillary temperatures. So far as my observations have yet extended the results are uncertain and often apparently inconsistent with each other, even in the same case. Temperature is sometimes uniform upon the two sides of the body, but is oftener higher upon one, which is not always the same with reference to the side of the head upon which the lesion is situated. The differences have ranged from two tenths of a degree to, in one instance, nearly three degrees. I am inclined to believe that this variation exists more uniformly in cases of intracranial injury than under other conditions, and that the temperature is rather more frequently two tenths of a degree higher upon the side opposite, than upon that corresponding to the seat of injury. I have as yet insufficient data to form definite opinions as to its significance and pathological relations.

In eleven cases, including the one to which reference was made in the class of simple lacerations, the progressive rise of temperature was continuous for a certain time even after death; they constitute a considerable proportion of the cases in which post-mortem observation was made, and are best shown in tabular form :

CASE NUMBER.	Final temperature.	Post-mortem temperature.
25.....	104·8°	106°
30.....	106·8°	109°
33.....	100·4°	101 2°
34.....	100°	102·6°
117.....	107·4°	109·4°
60.....	108·6°	110°
61.....	107·8°	108°
125.....	107·2°	107·8°
128.....	106°	106·2°
73.....	104°	106°
130.....	105·6°	106°

The lesions associated with this post-mortem calescence, which extended over an hour or more, comprehended all those heretofore described, and involved all parts of the brain; the only one which was constant was laceration; but even this was sometimes disproportionate to the severity of a general hyperæmia, or to the amount of a cortical hæmorrhage, by which it was attended. I am unable to trace any connection between this phenomenon and the region of the brain affected, and it certainly has no dependence upon injury of the so-called heat centers. It seems

probable that it is a mere continuation of a thermogenetic process, however excited, or the result of deficient thermolysis, however occasioned.

I shall refer to the pulse and respiration in only general terms. Their one notable characteristic was a very slight deviation from the normal standard. In the whole number of cases which I have examined, in which laceration was the essential factor and in which there was no tangible interference with the ponto-medullary region, neither the circulatory nor the respiratory function was sensibly affected until late in the progress of the case. None of the positive symptoms have been more constant in such injuries as a class than these negative conditions. If general shock was intense, as in case of some gunshot wounds or in crushing injuries of the vertex, if hæmorrhage was excessive, or if arachnitis at once supervened upon meningeal contusion, both pulse and respiration were frequent; but these cases were exceptional. The contrast habitually presented by a practically normal and unaccelerated pulse and respiration, with symptoms of perhaps great severity, seems scarcely less remarkable than the exaggerated temperatures which have been the occasion of surprise in the same series of cases. There have been comparatively few instances, either fatal or recovering, in which the pulse has exceeded ninety or the respiration twenty-six or twenty-eight in frequency; they have oftener ranged well below than above this rate. The pulse when not entirely normal has inclined to fullness and slowness. The transient stimulation and subsequent paralysis of the medulla, with corresponding retardation and acceleration of the pulse, which von Bergmann attributed to a hypothetical functional disturbance of nutrition, has not yet come within my observation.

I have deferred until the present time the consideration of a condition of the pulse which occurs not only in connection with laceration, but with other forms of intracranial lesion, and which I believe has been only observed in my series of cases. I refer to a lack of symmetry in the radial pulsation upon opposite sides of the body. It was first noticed in May, 1893, and since then has occurred in an aggregate of twenty cases. The bilateral variation in the character of the arterial pulse consists in a difference in its fullness and strength. In some of these instances its strength and fullness at one wrist were in startling contrast to its weakness and tenuity at the other. It was equally regular and frequent and in all other respects symmetrical upon the two sides. In each case the existence of this difference was confirmed by two or more observers, and if not indisputable was rejected as a symptom. Eleven cases terminated fatally, of which nine were subjected to necropsy. In the cases of recovery, as well as in those which were fatal but failed of necropsic inspection, the nature of the lesions was sufficiently evident from other indications. The lesions discovered in necropsy differed in each case from those in any of the others. They comprised all forms of hæmorrhage, epidural, cortical, and pial; lacerations more especially of the frontal and temporo-sphenoidal lobes, but also of the parietal lobe and of the pons, corpora striata, and optic thalamus, and almost invari-

ably some degree of general contusion existed. There were two cases of hæmorrhage without laceration, and one of limited contusion without hæmorrhage. The inferential lesions, those occurring without opportunity for necropsic inspection, were somewhat less diversified. They included four cases of depressed fracture of the vertex, with moderate general contusion in three, and with epidural hæmorrhage and laceration of the frontal lobe in one; four cases of fractured base, with laceration of frontal and temporo-sphenoidal lobes in three, and with hæmorrhage and general contusion in one; two cases of laceration of the frontal lobe, with parietal hæmorrhage; and one case with simple general contusion.

The pulse was fuller and stronger on the side corresponding to the seat of injury in eight cases, upon the opposite side in nine, and in two this relation was unknown, from imperfect clinical record in one instance, and *ex necessitate rei*, in a case of general contusion, in the other.

It would seem impossible, therefore, to infer the character or location of the lesions from this symptom alone; it is equally so from any correlation which exists between it and others by which it has been accompanied. The first few cases seemed to indicate a suggestive connection with the pupillary condition, which larger experience has shown to be fallacious. The pupils are dilated in a considerable number of cases, normal in an almost equal number, and contracted or asymmetrical in others.

(To be continued.)

A STUDY OF ERYSIPELAS:

ITS INFECTIOUS NATURE; THE DEPRESSION UPON THE VITAL POWERS;
SEPTICÆMIA AS A COMPLICATION;
THE CURATIVE INFLUENCE UPON GRANULATING SURFACES
AND UPON SARCOMATOUS GROWTHS.
WITH A REPORT OF ELEVEN CASES.*

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(Concluded from page 658.)

GROUP II.

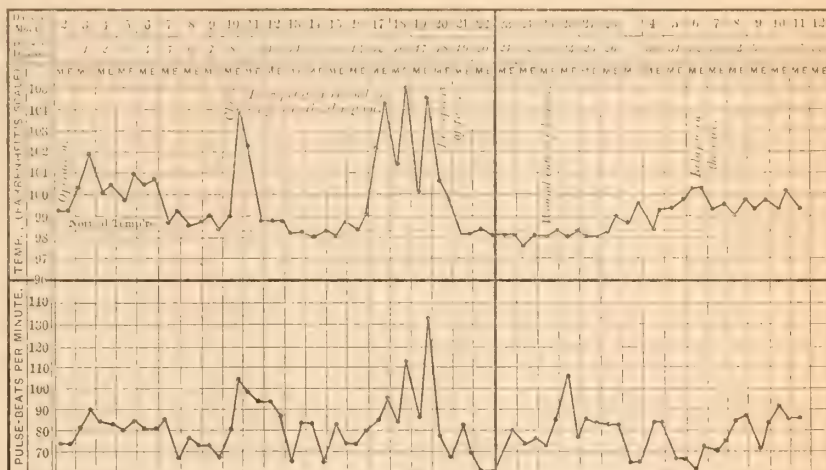
BEFORE entering into the second group of cases, where erysipelas has a curative influence upon granulating areas and upon sarcomatous growths, a few introductory remarks upon this important subject may not be out of place.

Dr. W. B. Coley, of the New York Hospital for the Ruptured and Crippled, has discovered a new treatment for malignant tumors. He began his investigations as early as September, 1891, independently of similar experiments going on in Germany (Fehleisen's); and to him belongs the credit of having first introduced into America the inoculation with the streptococcus of erysipelas as a therapeutic agent. Dr. Coley professes to have obtained, in many

cases, the complete disappearance of carcinoma and sarcoma under this new method of treatment.

Dr. J. H. Monks, of the Boston City Hospital, followed Dr. Coley's treatment in two cases of large inoperable sarcoma, but his results have not been favorable.

CASE I. *Operation for Left Inguinal Adenitis; Accidental Erysipelas of the Wound and of the Face; Curative Influence*



Group II, Case I.

upon the Wound; Relapse at the Face; Recovery.—P. C., stableman, twenty-two years of age, entered the hospital on February 1, 1894. He is a strong, healthy adult, who was admitted into the hospital for operation upon a left inguinal adenitis of six weeks' standing, due to gonorrhœal urethritis. Abdominal and thoracic viscera negative. Urine negative.

Operation by Dr. Watson on February 2d. The glands of the left inguinal region were dissected out and excised. Incision seven inches long. Enlarged lymphatics and bleeding vessels were tied. The wound, after having been scrubbed with iodoform gauze and peroxide of hydrogen, was closed with interrupted silk sutures, except at the ends, where drainage was established by means of a dozen heavy silk threads. There was slight purulent discharge from the wound, and the case followed a normal course under daily corrosive dressing.

On the eighth day after the operation, however, the patient had a sudden chill with marked constitutional disturbances. An examination of the wound at the time showed no perceptible change, and drainage was apparently perfect. The spleen was not enlarged and there was no malarial history. The temperature subsided and it remained within the normal limits for several days, and it was then supposed that the chill had no relation to the local condition.

On the fifteenth day after the operation (February 17th) the morning temperature rose to above 104° and it became irregular, with morning remissions and evening exacerbations, for a period of four days. The pulse showed corresponding changes, as will be seen in the chart; it became feeble and rapid. There were constitutional disturbances.

During this febrile period the local condition of the wound showed striking changes; the discharge became purulent and increased to about two ounces in the twenty four hours. There appeared an area of redness for about two inches around the wound, with sharply defined outline; and there was also an increased tension of the parts accompanied by a burning sensation. The right side of the face became similarly involved, and the patient was isolated. It was evidently a case of erysipelatos infection occurring through two remote and different

channels: (1) through the wound at the left inguinal region, and (2) through a small abrasion of the skin of the face probably.

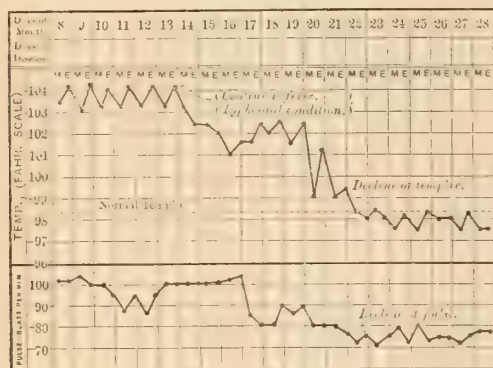
Then it was interesting to observe the effect which such an infection had upon the suppurating surface. In the course of a few days the swelling, redness, and pain had disappeared; the amount of discharge gradually diminished, and on February 25th the whole inguinal wound appeared entirely healed. Desquamation ensued at the face and left inguinal region and resolution took place.

On March 6th slight redness of the face reappeared, apparently a relighting of the process. This relapse lasted only two days, and on March 12th desquamation had been completed and the patient was discharged well.

This case was treated as usual by the judicious use of stimulants, the application of lead-wash compresses to the face, and the dressing of the inguinal wound with corrosive gauze (1 to 6,000) daily.

CASE II. Traumatic Periostitis of the Right Leg; "Erysipelas Ambulans"; Marked Pyrexia and Typhoidal Condition; Curative Effect upon the Granulating Area; Recovery.—J. C., engineer, thirty-two years of age, entered the hospital on January 7, 1894, with the history of having struck his right shin against a barrel two weeks previously. Swelling of the leg and an ulcer resulted. Feverishness and constitutional disturbances for the last few days present. No venereal history obtained.

Physical Examination.—Well developed and well nourished. Examination of the heart, lungs, liver, and spleen negative. Urine, smoky, and sp. gr. 1.026; albumin $+\frac{1}{2}$ per cent. No sugar. Diazo reaction present. Sediment; excess of normal and few abnormal blood globules. Some round cells. Occasional casts with normal blood adherent. Right lower leg: on the anterior surface of the tibia at the junction of the middle and lower thirds there is an ulcerated area, rounded in outline, three fourths of an inch in diameter, of worm-eaten appearance, with thick border and surrounded by an area of hyperæmia. There are pain, swelling, and induration around it.



Group II, Case II.

There is no fluctuation. A probe reveals no bare bone. The amount of discharge is moderate. The general condition is fair. Cultures in blood serum from the purulent discharge showed the presence of the staphylococcus and of the streptococci.

January 8th.—Patient had a sudden rise of temperature to 104°. Pulse, 100, rapid and feeble. Around the ulcer of the right leg the hyperæmia has extended upward to the knee, and there is a sharp border which marks the boundary between the normal and the congested skin. There were also decided constitutional disturbances. The tongue was dry and with a thick white coat, and the patient appeared to be in a typhoidal condition.

The continued fever, with morning remissions and evening exacerbations, the malaise, and the general disturbances, brought on the question of typhoid fever.

The further history, however, cleared up the diagnosis. There was no splenic enlargement made out at any time during the illness. The blush and swelling, with a smooth, shiny appearance and a well-defined margin, advanced steadily upward over the anterior surface of the thigh, and at each successive day the upper limit of the inflammation had reached a higher level. As the blush and swelling advanced upward, there was correspondingly disappearance in the lower regions. On January 23d the inflammation had involved the uppermost part of the thigh, extending over the outside of the hip joint; beyond this the process reached no farther. Resolution took place and desquamation made its appearance. The constitutional disturbances abated with the lowering of the temperature.

This was unquestionably a case belonging to the variety known as "erysipelas ambulans," the infection having taken place through the wound in the right leg. In this case we also have an illustration of the curative effect upon the wound. The swelling subsided; the discharge, which had increased during the height of the fever, gradually diminished from day to day; the bone became covered with periosteum, and the wound was completely healed on February 5th.

The treatment was symptomatic. The wound was dressed antiseptically. Flaxseed poultices were applied during the acute stage.

CASE III. Large Inoperable Sarcoma of the Right Thigh. Five Inoculations with Cultures of the Streptococcus Erysipelatos; Partial Disappearance of the Growth; Death from Septicæmia; No Evidence of Retrograde Metamorphosis on Microscopical Examination; Autopsy.—O. M. M., aged sixty-nine years, carpenter, entered the City Hospital on August 24, 1893.

Family and past histories negative. Present illness: About four years previously patient noticed pain and slight stiffness of the right thigh; these symptoms have steadily increased in frequency and severity. Last December he first noticed an indurated area upon the posterior upper surface of the same thigh.

Physical Examination.—Well developed and well nourished. Heart and lungs not abnormal. Right thigh considerably enlarged. On the middle third of the posterior surface is a cicatrix of a former operation (?) and a bluish soft tumor the size of an orange projecting from the surface, to which it is attached by a small, short-necked pedicle. Its surface is uneven. There is considerable induration around and beneath the tumor. Urine negative. General condition fair.

Subsequent History.—An operation for the removal of the growth was not deemed advisable, and the question of an artificial streptococcus infection was judiciously considered. The nature of the disease and of the proposed inoculation having been explained to the patient, he made a request for such an inoculation, and this was performed by Dr. Monks on September 5th. The field of operation was shaved and covered with corrosive poultice; during the preceding night and just before inoculation it was scrubbed with boric-acid solution.

The skin about the tumor was scarified in five or six places, making slightly bleeding and oozing surfaces. Platinum wire, sterilized in a Bunsen burner, was inserted into colonies of the *Streptococcus erysipielatos* in agar-agar cultures (obtained from Dr. Coley, of New York), and the inoculations were made by applying the platinum wire to the scarified areas. A small portion of the tumor was removed for examination. One inoculation was made into the tumor itself. Sterilized gauze and a rubber dam were applied.

September 6th.—The temperature is slightly elevated, but no

constitutional disturbances, such as chills or vomiting, have intervened. Right thigh: Scarified areas are reddened and oozing. Sterilized dressing applied.

The temperature subsided, and on September 13th there was no apparent change to be noted in the tumor. Inoculations were made, in a similar way to that of September 5th, with a streptococcus culture obtained from a patient with erysipelas in the next bed. Sterilized gauze and rubber dam applied.

29th.—The temperature lowered. The appetite was better. The red areas had scattered over the posterior aspect of the thigh, and the pedunculated portion of the tumor had sloughed off, leaving granulations beneath. No larger sloughs have been seen at any time. The whole size of the leg not apparently materially changed.

30th.—The temperature subsided and the patient was inoculated for the fifth time by injecting two cubic centimetres

and a half of the bouillon culture subcutaneously, two cubic centimetres and a half in the deep layers of the skin, and one cubic centimetre in the substance of the tumor itself, beneath the granulations.

Five hours after inoculation the patient had a chill and the right thigh increased in size, measuring twenty-five inches in circumference. Marked constitutional disturbances followed.

October 3d.—In the morning the temperature dropped, to rise upward again in the evening. The pulse became weak and rapid. Respiration superficial and frequent. Nausea and vomiting appeared.

4th.—Tenderness, swelling, redness, and heat present in the first phalangeal joint of the right forefinger.

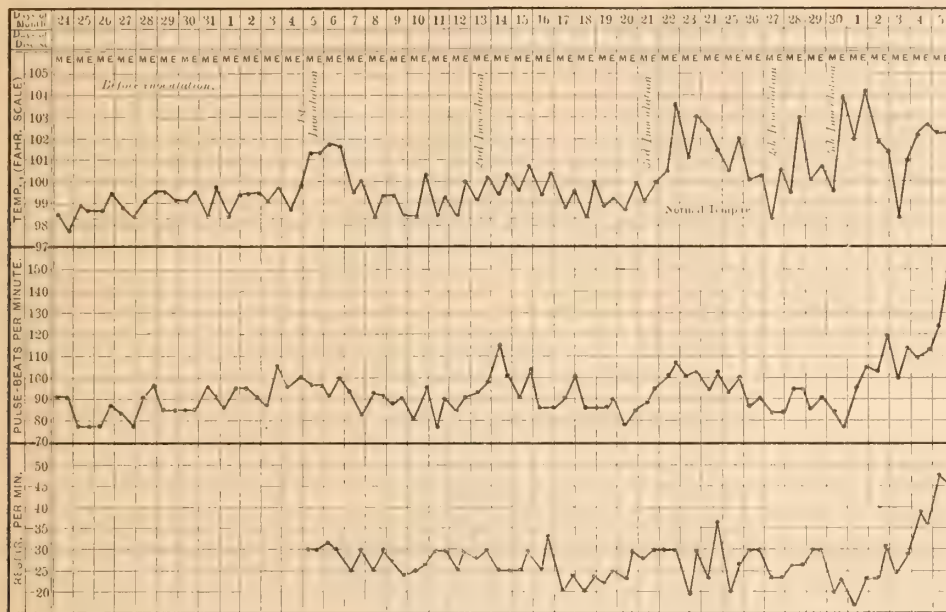
5th.—Patient has been in a condition of stupor all day. The right thigh seems to have diminished in size; the tumor is softer, more flabby, and movable in the soft parts.

6th.—The patient continued unconscious, with high pulse respiration, and temperature. Stimulants had no effect, and death occurred at 4 A. M.

Autopsy by Professor Councilman, of the Harvard Medical School, at 2 P. M. Body large, strongly built, well nourished. Abdomen greatly distended. Dark fluid flowing from the mouth.

Right thigh.—On the posterior aspect of the right thigh, at about the junction of the upper and middle thirds, there is a large projecting tumor mass, eight centimetres in diameter. Below this, in the same line, is a smooth cicatrix extending five centimetres downward, and three centimetres broad at its upper margin. The skin in the neighborhood of the tumor, and for some distance over the thigh, is mottled. In the middle of the projecting mass is a large opening with extensive sloughing edges, which pass downward into a cavity. The entire projecting mass is to a large extent gangrenous and sloughing. This is more marked in the lower portion than in the upper. On section into the tumor, directly through the projection, the cavity is found to continue down into the tumor, making irregular projections into the surrounding tissue for a distance of seven centimetres. The edges of this cavity everywhere are black, sloughing, and necrotic. The slough extends from the edges of the cavity for some distance into the surrounding tissue. On the outer aspect of the tumor, beneath section and extending downward into the muscle, and connected by a passage with the central slough, are large cavities with gangrenous edges, filled with a black, stinking fluid.

The tumor proper is of irregular shape, with circumscribed and smaller masses more or less connected with the central



Group II, Case III.

With the exception of shooting pains in the affected thigh and of slight rise of temperature, there were no changes to be noted, the signs of erysipelatos inflammation being absent.

21st.—The tumor of the right thigh was inoculated with the *Streptococcus erysipelatos* by two different methods:

(1) By scarification and the application of the platinum wire from agar cultures.

(2) By the injection with a Koch's syringe of two cubic centimetres and a half of bouillon culture of streptococcus (Both cultures were obtained from Dr. Coley, of New York.)

22d.—Patient had a chill at 3.30 A. M. Nausea, vomiting, and general malaise appeared. There is a red swelling on the right thigh, completely surrounding the tumor for an area of twelve to fifteen inches in diameter, with irregular edges. Here and there red islands are seen. Sterilized dressing was applied three times a day. The tincture of chloride of iron, M x ; quinine sulphate, gr. ij; and whisky, $\frac{3}{4}$ ss., were given every six hours.

25th.—Patient complained of nausea and vomiting. Pain in the lower abdominal region and darting pains in the right thigh were present. The area of redness is more extensive. A part of the tumor has apparently sloughed away, though no pieces have been found in the dressing, and a new area of ulceration on one side of the tumor has formed.

27th.—The inflammation has undergone resolution and the blush has faded. General condition improved. The tumor was then inoculated for the fourth time by the (1) scarification and by the (2) injection methods, five cubic centimetres of bouillon culture having been used (Dr. Coley's cultures of streptococcus). Sterilized dressing applied.

28th.—In the morning an area of redness 2×5 inches has appeared about the points of inoculation. In the evening there was a rise of temperature to 103° , and the patient suffered from general distress. Anorexia present.

tumor, extending into the tissues all about. The central mass measures in all directions eight centimetres. It is—except in the sloughing portions—of a grayish-red appearance, and contains one or more small cysts with gelatinous contents. Immediately at the bottom of the tumor is a small mass of the same consistence and three centimetres in diameter. At another place adjoining the tumor is a slightly yellowish translucent mass of tissue containing several hæmorrhages and presenting the appearance of fat. From the inner side of the tumor there is a large projecting mass, five centimetres in circumference, circumscribed in part and in part connected with the parent growth, but easily separable from the main tumor and surrounding tissues. This mass is opaque and whitish-gray in color, and of tolerably firm consistence, though not so consistent as the main tumor. There is slight infiltration into the muscular tissue. In the surrounding muscle there is considerable fibrous tissue.

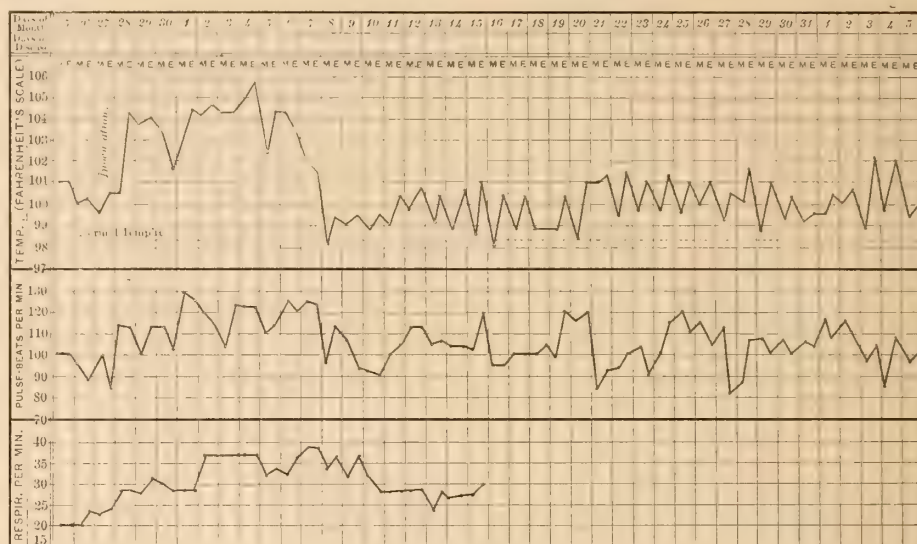
The part of the autopsy relating to the tumor is here given in full. An examination of the other organs showed the general lesions of septicæmia. There were marked parenchymatous swelling and degeneration of the liver, spleen, and heart; also minute hæmorrhages in both the pleura and pericardium. Cultures were made at the autopsy from various parts of the tumor and from all the organs. The results of the cultures are as follows: 1. From the tumor and its neighborhood there were numerous colonies of streptococci, a few of the colon bacillus, and a few of the *Bacillus pyocyaneus*. 2. From the inguinal gland on the inside of the tumor, pure cultures of streptococci. 3. From the spleen, liver, and blood of heart, pure cultures of streptococci. The streptococcus in its growth conforms to the character of the *Streptococcus pyogenes*.

Careful microscopic examination of the tumor was made, both fresh and after hardening in various media. The tumor was found to be a large *mixed-cell sarcoma*, with a considerable formation of myxomatous tissue in various parts. The gelatinous-looking nodule in the remnants of the tumor had a typical myxomatous structure; throughout the tumor, especially in sections of portions adjoining the slough, numerous groups of streptococci were found. They were to a great extent in the blood-vessels and lymph spaces of the tumor, often associated with thrombi. These were the only bacteria found on microscopical examination. The cells of the tumor, except where the actual slough had taken place, were well preserved and contained numerous nuclear figures indicating rapid cell proliferation.

The results of the pathological examination show a general streptococcus septicæmia proceeding from the tumor; the extensive slough may have been due to interference with blood supply from the inflammation attending the injections, or may have been due to the direct effect of the streptococcus on the tissues. The microscopic examination failed to show any evidence of retrograde metamorphosis in the tumor at a distance from the slough, but, on the other hand, as far as could be judged from the evidence of the very numerous nuclear figures, an increased degree of cellular activity.

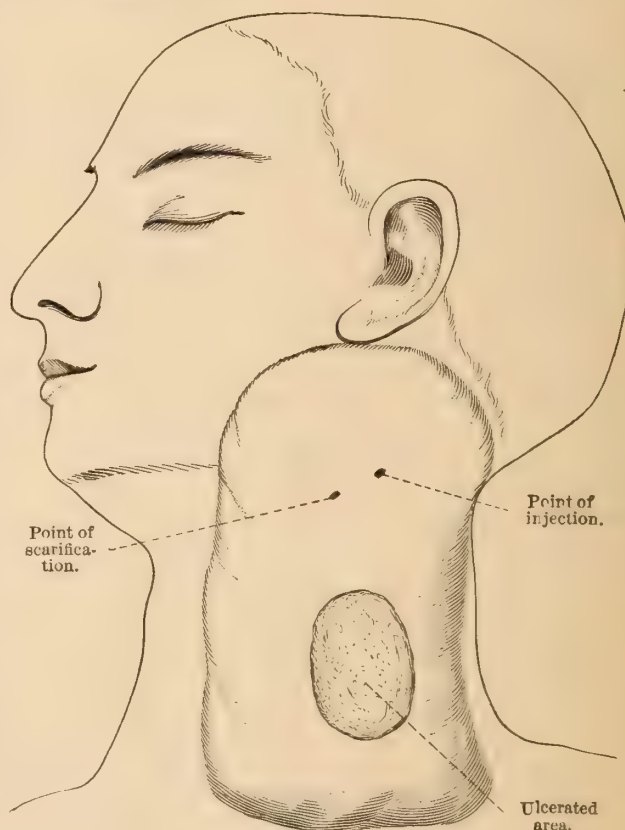
CASE IV. *Large Inoperable Sarcoma of the Neck; One Inoculation with the Streptococcus Erysipelatis; Recovery from*

the Inflammatory Reaction; Slight Influence upon the Growth; Death; no Autopsy.—E. D., domestic, thirty-five years old, entered the Boston City Hospital on September 12, 1893. Family and past histories negative. Present illness: About three months ago she first noticed small lumps, of the size of a bean, non-painful, on the left side of the neck. They have gradually



Group II, Case IV.

increased in size, and during the past few weeks the growth has become more rapid and a large mass has resulted. Pain has become a prominent symptom.



Group II, Case IV.

Physical Examination.—Well developed; somewhat emaciated. Heart and lungs negative. Liver and spleen not enlarged. Neck: On the left side of the neck (*vide cut*) is a swelling,

about the size of the fist, extending from the mastoid process downward almost as far as the clavicle, and from the ramus of the jaw in front backward to within three quarters of an inch in the median line. This tumor is firmly adherent to the deeper structures, but is movable under the skin, except at its lower part, where there is a swelling about the size of a hen's egg, discolored and fluctuant. The surface temperature is not increased.

Subsequent History.—The expectant treatment was used. The patient's general condition was failing. On September 20th the growth had apparently increased considerably in size, and a bloody discharge appeared from an ulcerating area at its lower part. In this large inoperable sarcoma of the neck its removal was contraindicated, and the case seemed to be suitable for the treatment with artificial streptococcus infection, at least as a last resource.

On September 27th, at the patient's request, Dr. Monks inoculated the tumor in the neck with cultures of the *Streptococcus erysipelatos* on the anterior and upper parts (*vide cut*) by the two methods of (1) scarification and (2) subcutaneous injection. In this case two cubic centimetres and a half of bouillon culture were injected. The cultures were taken from a case of erysipelas occurring in Dr. Post's service.

This inoculation was followed by a febrile period, which lasted ten days (*vide chart*), during which period marked constitutional disturbances were present. There was also a marked local reaction, manifested by a general swelling and redness around the points of inoculation. Examination of the throat showed enlarged tonsils and general redness of the pharynx.

October 20th.—The swelling and redness about the tumor have disappeared, leaving the tumor apparently of about the same size as at the time of entrance. The ulcerated area is about two inches by one inch, and bleeds at each dressing slightly. (Sterilized dressing was applied daily.)

On several occasions patient's general condition was somewhat improved, and she was allowed to sit up. The tumor, which before inoculation had shown signs of active growth, has reached apparently a state of quiescence.

November 30th.—A hæmorrhage from one of the veins of the neck occurred, which was controlled by pressure. The tumor began once more to show signs of active growth.

December 6th.—The size of the tumor was considerably increased, especially at the posterior part; the ulcerating area has enlarged, and the discharge become profuse.

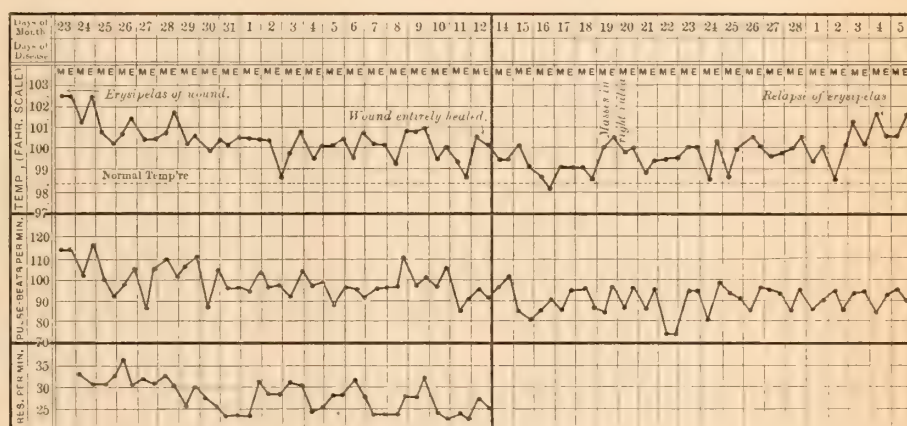
A glance at the chart shows that the temperature was constantly somewhat elevated, with morning remissions and evening exacerbations, even after the subsidence of the inflammatory reaction following the inoculation. The patient became more and more exhausted from day to day. She was unable to retain nourishment; stimulants had no effect; and finally, on December 11th, she became unconscious, and died at 6.30 P.M. No autopsy.

CASE V. Sarcoma of the Right Thigh in a Woman Seventy Years of Age (Recurrent?); Operation; Accidental Erysipelas; Curative Effect upon the Wound; Two Relapses of the Erysipelatous Inflammation; Influence upon Tumors in Right Labia and Right Iliac Region; Recovery.—E. B., seventy years of age, widow, entered the City Hospital on December 8, 1893, in

Dr. Bolles's service. Family history negative. Past history: She was operated on for the removal of "hæmorrhoids" in England many years ago. Entered this hospital on January 22, 1892. At that time it is stated in the records that she had about the anus a tumor, an inch by a quarter of an inch thick, of fungoid appearance and purplish in color. The growth was removed, and it was reported to be an "intracanalicular papillary fibroma."

Present illness: Patient claims that two weeks after the last operation "lumps" appeared in the right groin, which increased slowly in size. For the last year the rapidity of the growth is more noticeable. Patient has been confined to bed for the last three months on account of shooting pains over the legs and general distress.

Physical Examination.—Body fatty and anæmic. Heart weak; no enlargement; sounds normal. Lungs, liver, and spleen negative. Urine acid; slight traces of albumin; specific gravity, 1.018; abnormal blood and occasional hyaline and fine granular casts. Inguinal glands enlarged on both sides, especially on the



Group II, Case V.

right. Right thigh: On the anterior aspect, just below Poupart's ligament, there is a tumor of the size of an orange and of semisolid consistence.

Subsequent History.—On December 12, 1893, Dr. Bolles removed the mass in the right thigh. The wound, five inches long, was allowed to heal by granulations. The growth was found to be a sarcoma.

January 23d.—The wound became swollen, red, and painful; the area of redness extended two inches around, with a zigzag margin. There were constitutional disturbances. The patient was transferred to Dr. Watson's service. Profuse discharge from wound.

This was a case of accidental erysipelatous infection, and it is reported as an illustration of the curative effect which the *Streptococcus erysipelatos* has upon the granulating surface. The discharge gradually diminished; the wound became covered with healthy granulations, and on February 12th it was entirely healed.

There were other features in this case which are worthy of note.

February 19th.—Small masses, of the size of a marble, appeared in the right side of the vulva, which became softened in a few days and discharged puslike fluid. Larger masses were felt in the right iliac fossa, apparently under the abdominal wall.

On March 4th and March 27th the patient had two successive fresh outbreaks of erysipelatous infection in the upper part of the right thigh. The patient remained in the hospital for several weeks, and convalescence was slow. Complained of pain in abdomen and legs.

May 15th.—She was much improved. The bowels have been kept open. No pain in the legs or abdomen. At the right iliac region the tumors have apparently diminished in size. The small masses over the right labia have increased considerably during the preceding two weeks; now they appear red and somewhat soft, as if ready to ulcerate. One of these masses is actually discharging a thin fluid. Good general condition. Patient was discharged, and has not been heard from since.

In Dr. Monks's two cases of sarcoma, although a cure was not obtained, there occurred changes of some significance. In the first case inoculated with cultures of the *Streptococcus erysipelatos*—a large inoperable sarcoma of the right thigh—there was a partial disappearance of the growth, yet there was no microscopical evidence of retrograde metamorphosis, as was shown at the autopsy. In the second case inoculated, the tumor at one time appeared to have reached a quiescent stage. The patient recovered from the inflammatory reaction, and died many days afterward. No autopsy was obtained.

And in the last case of my list there appeared to be also a certain influence upon the tumors in the right labia and right inguinal region, besides the healing of the wound.

In addition to ten original cases, Dr. Coley has tabulated the reported cases of carcinoma and sarcoma in which erysipelas, either spontaneous or artificial, intervened, making up a total of thirty-eight cases. Of these cases, the erysipelas occurred accidentally in twenty-three cases, and was the result of inoculation in fifteen cases; seventeen cases were carcinoma; seventeen cases were sarcoma; four either sarcoma or carcinoma. The results were as follows: In carcinoma (seventeen cases), three cures, 17.6 per cent.; one death, 5.9 per cent. In sarcoma (seventeen cases), seven cures, 41 per cent.; one death, 5.9 per cent. Four carcinoma or sarcoma, two cured. From the figures it is evident that the curative action is more marked in sarcoma.

I will devote a brief consideration to the method of action of the *Streptococcus erysipelatos*.

According to Ernst, bacteria produce their effect upon the living tissue in three different ways:

1. By mechanical obstruction.
2. By abstracting from the tissues of the body the material necessary for their own growth, and by so much depriving the tissue cells of nutrition necessary for their own development.
3. By the production, during their growth, and either by direct exciting metabolism or as the result of the chemical affinities of the elements left in unstable equilibrium after those necessary for the bacteria have been abstracted, of new chemical compounds that are destructive to their own further activity or even to their further existence.

And now the question comes, In which way does the *Streptococcus erysipelatos* produce its curative action upon sarcomatous growths?

Dr. Coley, believing in the parasitic origin of cancer, explains the action of erysipelas as follows: If a small quantity of blood serum of an animal rendered immune to tetanus is capable of destroying or rendering inert the virulent bacilli in a fresh case, it is quite as easy to understand that the toxic products of the erysipelas streptococci might

bring about such changes in the blood serum as to destroy the parasite of cancer. The parasite having been destroyed, the irritation would consequently cease, and this would lessen the hyperæmia of the parts, upon which factor the life of the tumor cells of low vitality largely depends.

Dr. Coley believes also that the phagocytosis theory is insufficient to explain the action of erysipelas. According to this theory, after the introduction of bacteria into the living tissues, certain cells of the body act as actual phagocytes, destroying by absorption the bacteria. I would venture to say that perhaps phagocytosis can not be absolutely discarded in view of the fact that in many instances repeated injections of cultures of the *Streptococcus erysipelatos* have failed to produce the disease. Dr. Coley himself has reported eight of these classes of cases.

Was not this failure the result of the destruction of the streptococci by the phagocytes?

And is not the phagocytosis theory another reason for preferring the use of the toxic products of erysipelas to that of the cultures?

Conclusions.—1. The general infectious nature of erysipelas and its dangers should always be borne in mind. Marked prostration, cerebral symptoms, and septicæmia are not infrequent complications.

2. Accidental erysipelas has a curative influence upon granulating surfaces, but its use in the treatment of ulcers would be unjustifiable.

3. In the treatment of neoplasms by Dr. Coley's method of inoculation with the streptococcus of erysipelas we have a therapeutic agent which should not be employed indiscriminately.

4. There is a marked discrepancy between the clinical and the pathological evidences; Dr. Coley's cases of disappearance of neoplasms under his treatment with streptococcus inoculation contrast with the results obtained by Dr. Councilman at the autopsy.

5. Further investigations, especially with the toxic products of erysipelas, are necessary for the resolution of this important problem.

Before concluding I wish to acknowledge my indebtedness to Dr. W. T. Councilman, Dr. W. P. Bolles, Dr. F. S. Watson, Dr. G. H. Monks, Dr. H. W. Cushing, Dr. A. M. Sumner, and Dr. V. Bowditch, of the Boston City Hospital, for their kindness in allowing me to use the hospital records of the cases which I have discussed.*

Bibliography.

1. *American Text-book of Surgery*, 1892.
2. Coley. *American Journal of the Medical Sciences*, May, 1893.
3. Ernst. *Boston Medical and Surgical Journal*, vol. cxxix, p. 85.
4. Hyde. *Diseases of the Skin*, 1888.
5. Hospital Records. Boston City Hospital: *Surgical Records*, vol. C-25, vol. C-28, vol. C-29, vol. A-235. *Medical Records*, vol. A-368, vol. C-91.
6. Von Ziemssen. *Handbook of Skin Diseases*, 1885.

* Since this paper was first written Dr. Coley has published, in the July number of the *American Journal of the Medical Sciences*, an article entitled, Treatment of Inoperable Malignant Tumors with the Toxines of Erysipelas and the *Bacillus prodigiosus*.

THE
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MEDICAL MATTERS IN THE STATE OF MAINE.

THE Maine Academy of Medicine was organized on the 29th of October, and held its first stated meeting in Portland on Monday evening, November 12th, with the president, Dr. Seth C. Gordon, in the chair. We learn from the academy's official organ, the *Journal of Medicine and Science*, that the organization is very liberal in the matter of admitting to membership. "Its range of fellowship," says the *Journal*, "will be as wide as that of the American Public Health Association, which includes physicians, dentists, apothecaries, lawyers, ministers, civil and sanitary engineers, architects, health officers, teachers, plumbers, merchants, etc." As the academy's career advances it will be interesting to observe how such an experiment works. The constitution sets forth that a candidate for fellowship must be a graduate in medicine or "a representative man in the community in which he resides and interested in the promotion of the objects for which the academy is founded." At present the academy is divided into sections in general surgery; in general medicine, materia medica, and therapeutics; in gynecology, obstetrics, and pædiatrics; in ophthalmology, otology, neurology, rhinology, and laryngology; in anatomy, physiology, chemistry, and pathology; in public health, legal medicine, and medical and vital statistics; and in dermatology and genito-urinary and rectal diseases.

Strictly medical investigations and discussions will, we infer, not constitute the sole exercises of the academy, but it will concern itself in the furtherance of legislation designed to improve the medical profession of the State and to protect the public against unqualified practitioners. Even now the academy's organ is urgent in pointing out the need of a medical registration law as a means of protection against irresponsible itinerants, those medical buccaneers who, driven from one State after another by legal enactments, can not be wholly subdued until there are competent laws, efficiently administered, for their suppression in all the States. The *Journal* fortifies its demand by recounting one of the recent exploits of an advertising oculist professing to belong in New York, but whose name is not to be found in any New York directory. It seems that a woman had cataract in each eye, and this fellow insisted on operating on both eyes without preliminary treatment and without observing the rules of modern surgery. There was no recovery of vision in either eye, but the operator, having collected his fee, departed. An adequate registration law, it is added, "could have prevented this robbery, not only of money, but of the chances of sight being restored by skillful treatment."

We trust that the new academy may speedily be instrumental in securing the needed legislation.

MINOR PARAGRAPHS.

THE HOT-AIR PHENIX.

It appears from an abstract, in the *Deutsche Medizinische Zeitung* for November 26th, of an article by Dr. Julius J. Cohen, published in the *Deutsches Archiv für klinische Medizin*, that the title *phénix à air chaud* has been given to a portable apparatus for administering hot-air baths to persons who are confined to the bed. It does not seem from the description to differ materially from the portable hot-air baths which have been in use in this country for years.

THE DANSE DU VENTRE AS A THERAPEUTICAL MEASURE.

In the *Lyon médical* for December 2d we find a brief account of the case of a young actress who was afflicted with obstinate constipation. A Paris surgeon thought it was due to a displacement of the uterus, for which he proposed to perform an operation. At length the girl secured an engagement to perform the *danse du ventre* in the provinces, and from the time of the first representation she found her bowels perfectly free. It is added that the subsequent execution of this dance four times a day has kept them in good condition. Are we to understand that the girl performed this dance in public without any previous practice, or that mere rehearsing lacked the therapeutic action of a public performance?

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending December 25, 1894:

DISEASES.	Week ending Dec. 18.		Week ending Dec. 25.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	16	3	20	7
Scarlet fever.....	111	7	92	9
Cerebro-spinal meningitis....	4	4	2	2
Measles.....	62	1	66	7
Diphtheria.....	200	41	175	38
Small-pox.....	2	0	9	3
Tuberculosis.....	83	103	94	117

The Philadelphia Hospital.—Last week we stated that Dr. Hobart Amory Hare had been elected one of the visiting physicians, to succeed Dr. Judson Daland, but we have since learned that he has declined to accept the office. Dr. A. A. Griskey has been elected bacteriologist, to succeed Dr. E. O. Shakespeare; Dr. Richard C. Norris has been made a member of the obstetrical staff, to succeed Dr. J. W. West; and Dr. George A. Oliver has been appointed on the ophthalmological staff, to succeed Dr. George M. Gould.

The Health of Dr. William H. Flint.—We regret to learn from Dr. Flint that, having suffered from a bronchial affection since undergoing an attack of influenza, which he had last spring, he has decided to leave New York for several months. He hopes to resume his work here next autumn.

Changes of Address.—Dr. P. L. Anderson, to suite 1319, No. 126 State Street, Chicago; Dr. Gustave A. Kletzsch, to

No. 453 Cass Street, Milwaukee; Dr. William M. Leszynsky, to No. 959 Madison Avenue, New York; Dr. Charles E. Simmons, to No. 762 Madison Avenue, New York; Dr. E. S. Strout, from Ironwood, Michigan, to No. 3103 Nicollet Avenue, Minneapolis.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from December 16 to December 22, 1894:*

GLENNAN, JAMES D., Captain and Assistant Surgeon, is relieved from duty at Fort Sill, Oklahoma Territory, and ordered to Fort Snelling, Minnesota, for duty at that post.

MORRIS, EDWARD R., Captain and Assistant Surgeon, on the arrival of CLENDENIN, PAUL, Captain and Assistant Surgeon, at Fort Warren, Massachusetts, will be relieved from duty at that post, and will report for duty at Fort Spokane, Washington.

STARK, A. N., First Lieutenant and Assistant Surgeon, is granted leave of absence for one month, to take effect upon his return to Fort Sam Houston, Texas.

Promotions.

WILCOX, CHARLES, First Lieutenant and Assistant Surgeon, to be Assistant Surgeon, with the rank of Captain, after five years' service, in conformity with the act of June 23, 1874. October 29, 1894.

McVAY, HARLAN E., First Lieutenant and Assistant Surgeon, to be Assistant Surgeon, with the rank of Captain, after five years' service, in conformity with the act of June 23, 1874. October 29, 1894.

FRICK, EUCLID B., First Lieutenant and Assistant Surgeon, to be Assistant Surgeon, with the rank of Captain, after five years' service, in conformity with the act of June 23, 1874. October 29, 1894.

Society Meetings for the Coming Week:

TUESDAY, *January 1st*: New York Obstetrical Society (private); New York Neurological Society; Buffalo, N. Y., Medical and Surgical Association; Elmira, N. Y., Academy of Medicine; Ogdensburgh, N. Y., Medical Association; Syracuse, N. Y., Academy of Medicine; Medical Societies of the Counties of Broome (quarterly), Franklin (annual), and Niagara (semi-annual—Lockport), N. Y.; Hudson, N. J., County Medical Society; Union, N. J., County Medical Society (quarterly); Chittenden, Vt., County Medical Society; Androscoggin, Me., County Medical Association (Lewiston—annual); Baltimore Academy of Medicine; Medical Society of the University of Maryland (Baltimore).

WEDNESDAY, *January 2d*: New York Academy of Medicine (Section in Public Health); Society of Alumni of Bellevue Hospital; Harlem Medical Association of the City of New York; Medical Microscopical Society of Brooklyn; Medical Society of the County of Richmond, N. Y. (annual—New Brighton); Bridgeport, Conn., Medical Association; Penobscot, Me., County Medical Society.

THURSDAY, *January 3d*: New York Academy of Medicine; Brooklyn Surgical Society; Society of Physicians of the Village of Canandaigua, N. Y.; Boston Medico-psychological Association; Obstetrical Society of Philadelphia; United States Naval Medical Society (Washington); Washington, Vt., County Medical Society (annual—Montpelier).

FRIDAY, *January 4th*: Practitioners' Society of New York (private); Baltimore Clinical Society.

SATURDAY, *January 5th*: Clinical Society of the New York Post-graduate Medical School and Hospital; Manhattan

Medical and Surgical Society (private); Miller's River, Mass., Medical Society.

Births, Marriages, and Deaths.

Married.

PAYNE—CHOPPIN.—In New Orleans, on Wednesday, December 12th, Dr. W. B. Payne, of Virginia, and Miss Amelia Metcalfe Choppin, daughter of Mrs. Blanche E. Choppin, of New Orleans.

Died.

NORRIS.—In Brooklyn, on Friday, December 21st, Dr. Thomas P. Norris, in the sixty-third year of his age.

PARKES.—In Brooklyn, on Friday, December 21st, Dr. THOMAS F. Parkes, in the thirty-first year of his age.

SUMNER.—In Providence, R. I., on Saturday, December 15th, Katherine S., wife of Dr. Ossian Sumner.

Letters to the Editor.

CÆLIOTOMY VERSUS LAPAROTOMY AS A SURGICAL TERM.

PITTSBURGH, PA., December 1, 1894.

To the Editor of the New York Medical Journal:

SIR: Under this heading our excellent friend and beloved colleague, Dr. Robert P. Harris, of Philadelphia, has sent me an article condemning the use of the word "laparotomy." He also underscores with red ink the word laparotomy wherever it appears in my article in your *Journal* of November 3, 1894, and incloses it to me with his article referred to. "Laparotomy" as a surgical term is wrong, but it should be borne in mind that technical terms acquire validity from long usage, often in spite of an incorrect etymology. If, therefore, it can be shown that the term cæliotomy is also an incorrect term etymologically, we do not improve matters by rejecting for it the term laparotomy. My Greek is very rusty; it is thirty-two years since I was graduated at old Jefferson College, at Canonsburgh, Pa., but I will try with what Greek is left these two words, "laparotomy" and "cæliotomy," and the reader may decide for himself on the merits of the case.

Lapara in Greek is derived from an adjective which means *slack* or *loose*, and in the human body is applied to the *flank*, meaning the loose flesh between the ribs and the pelvic bones or the hip. In military parlance it is a technical synonym for our word *flank*.

From *lapara* and the verb *temno*, to cut, is derived the word laparotomy. Literally it means to cut the *flank*. It has acquired validity from long usage, but is etymologically incorrect.

Cælia is the Latin, from the Greek word *koilia* derived from the Greek *koilos*, which means *hollow*, and in the human body means a *hollow viscus*, and was applied to the abdomen, heart, uterus, intestines, thorax, and stomach, etc.—any cavity of the body. Hippocrates applied it to the socket of the hip joint. The Greek adjective *koiliacus* was used to refer to anything contained in the abdomen or in any of its viscera—*fæces*, for instance. From this word *koilia* and the verb *temno* is derived the word cæliotomy. It means literally to cut open a *hollow viscus*, which the abdomen is not. It is no better than the term laparotomy, and lacks the validity from long usage which be-

longs to *laparotomy*. I believe the English term "abdominal section" is free from objection.

R. STANSBURY SUTTON, M. D.

THE NOMENCLATURE OF PTOMAINES.

HEALTH DEPARTMENT, ST. LOUIS, December 4, 1894.

To the Editor of the *New York Medical Journal*:

SIR: Noting in your issue of 24th ultimo, under Minor Paragraphs, the quoted comment on oxygen inhalations with reference to ptomaines prompts me to suggest that the word ptomaine is subject to considerable misuse in medical writings, which custom can hardly sanction or its origin extenuate.

The etymological derivation being from *ptoma*, a corpse, the alkaloidal products thus termed are defined as being due to changes in an organism after death, or as a consequence of morbid action during life.

It seems to me that it is of scientific importance and necessary in the interest of precision that a distinction should be made between the organic poisons which follow the operations of the putrefactive bacteria and those which are produced by the strictly pathogenic organisms.

There is to my mind a fundamental and striking difference in the manner of their production and sequence of action in living tissues, as, for example, the effects of the toxins yielded by the cholera spirillum, the typhoid bacillus, and the diphtheria organism differ far and wide from the toxic action induced by the ingestion of cadaveric alkaloids such as peptotoxine, muscarine, neuridine, putrescine, etc., or those produced by fermentative decomposition of food substances within the living body.

To meet this difficulty, when lecturing on the subject a few years ago in the St. Louis Medical College, I used the words *pathomaine* and *putromaine* as convenient means to distinguish the two kinds of poison, and I submit that these designations more nearly approach a correct nomenclature than the indiscriminate use of the word ptomaine to embrace substances radically different in origin and effect upon the human body.

GEORGE HOMAN, M. D.

INGROWING TOE-NAIL.

MANCHESTER, N. H., November 26, 1894.

To the Editor of the *New York Medical Journal*:

SIR: In connection with several letters in your journal on the causes of ingrowing toe-nail, permit me to tell you of a case of congenital ingrowing toe-nail which was certainly not inherited, as neither the baby's father nor her mother nor any of the grandparents had suffered from it. The mother told me, however, that the daughter of a neighbor had, some time before, undergone several very painful operations for that affliction and that she (the mother) had been very much concerned about it. She thinks that this is the cause of her baby's ingrowing toe-nail, and I give you her opinion for what it may be worth. I may say that I succeeded in curing the trouble in about a month.

H. J. ACHARD, M. D.

ERGOT OF RYE AS AN OXYTIC.

WHEELING, W. VA., November 26, 1894.

To the Editor of the *New York Medical Journal*:

SIR: In your issue of November 24th, in a communication with this title, Dr. E. A. Edlén, of Moline, Ill., reports a case in which he concludes that quinine acted where ergot failed. I believe he formed a wrong conclusion and that if he had waited half an hour longer he would have had the same result without

the quinine. At the same time I am not questioning the undoubted oxytocic property of the latter drug.

Five days ago I had a case almost precisely similar to the one reported by Dr. Edlén, as follows: Mrs. W., aged thirty-one, a primipara, very deaf, a small, frail-looking woman, had an ossified coccyx and a rather limited pelvis. I was called at 5 A. M. and found the os dilated sufficiently to admit my forefinger. I called again at 11 A. M. and found the os about as large as a half dollar. When I called next, at 5 P. M., I found she had been having lively pains for two hours, and the os was almost fully opened. In a short time the pains subsided and finally ceased entirely by six o'clock. At half past seven I gave her a drachm of a reliable fluid extract of ergot. At eight o'clock there had been no response whatever and I gave her another drachm (my conscience was not very clear about giving her any ergot, but the pains had apparently forgotten to come back). At half past eight good, strong, regular pains began, and at nine o'clock she was safely delivered of a six-pound girl baby.

JOHN L. DICKEY, M. D.

Proceedings of Societies.

THE NEW YORK NEUROLOGICAL SOCIETY.

Meeting of November 6, 1894.

The President, Dr. EDWARD D. FISHER, in the Chair.

The Surgery of the Brain.—DR. JAMES J. PUTNAM, of Boston, briefly reported the histories of four cases of brain surgery that had recently come under his observation. In all of these cases the chief symptoms had been headache, nausea, vomiting, and optic neuritis, and an operation had been advised for the purpose of relieving pressure. The first patient, a comparatively young man, had not recovered from the effects of the ether, and had died about five hours after the operation. No autopsy had been permitted, but, by an examination of the brain made through the opening in the skull, evidences of a large hæmorrhage underneath the cortex had been found. The second case was that of a young girl who had died during the etherization, before an incision had been made. At the autopsy three tumors had been found in the situation where the skull was to have been opened. In the third case the patient's symptoms had been decidedly relieved by the operation. In the fourth case a tumor of the cortex had been found, and a large cyst underneath the cortex; the latter had been emptied, but it had rapidly refilled, and during the past few days there had been some oozing of brain substance from the wound, and the patient was likely to do badly. These cases, the speaker said, went to show the dangers that attended opening the skull, which was usually regarded as a comparatively simple operation.

Photomicrographs of Nerve Cells (Golgi's Stains).—DR. M. ALLEN STARR showed some photographs that had been made by Dr. Edward Leaming, instructor of photomicrography at the College of Physicians and Surgeons, from specimens prepared by Mr. Strong in the laboratory of the Biological Department of Columbia College. They showed various portions of nerve tissue, some stained by Golgi's method and others by a modification of that method employed by Mr. Strong. These photomicrographs, Dr. Starr said, had been exhibited this year at Oxford, England, and had received a good deal of favorable comment. One of them, showing the Purkinje ganglion cell, had taken the prize in London for the best exhibit of photomicrography.

Acute Poliomyelitis in a Hen.—Dr. CHARLES L. DANA stated that during the past summer, in the months of July, August and September, there had occurred in the neighborhood of Rutland, Vt., an epidemic of anterior poliomyelitis. Dr. Caverly, the health officer of the State, said that during this epidemic horses and fowls had become affected, and on September 18th he had sent to Dr. Dana a large Plymouth Rock hen for bacteriological purposes. This fowl, on its arrival here, had been paralyzed, and the owner of the brood, a physician, reported that several had died, the symptoms being similar to those noted in this one. The hen had been taken to the Carnegie Laboratory and a careful clinical examination had been made, which had revealed a paraplegia, not quite complete, and some paralysis of the wings; the head and neck muscles had not been affected; there had been no anæsthesia. Dr. Dunham, who conducted the bacteriological examination, had inoculated several culture-tubes from the spinal cord and meninges, and had also taken several sections from the cord and made smear stains, all with a negative result. The spinal canal of the animal had been opened, but no evidence of meningitis had been found, and there had been no signs of hæmorrhagic extravasation. After the action of Müller's fluid and staining, a distinct area of softened tissues had been seen in the central part of what might be termed the lumbar region of the cord. The destructive process had been quite extensive, the congestion had been intense, and there had been several hæmorrhages. From the appearance of the cord, it appeared that there had been an acute exudative inflammation, and that the process had been so severe that necrosis had come on before the inflammatory reaction; hence it was practically a case of acute infectious softening rather than myelitis. Dr. Dana said that, while this case might not have any actual value, yet to a certain extent it corroborated the infection theory of anterior poliomyelitis, and, so far as it went, it supported the view that in this disease the changes were primarily vascular and not parenchymatous.

Dr. PUTNAM stated that, at an autopsy made in a case of anterior poliomyelitis of two months' standing in an adult, he had found that the necrotic process had been distinctly confined to the area immediately surrounding the vessels.

Dr. STARR stated that while on a visit to Vermont last summer he had seen a number of the cases of anterior poliomyelitis referred to by Dr. Dana. Within a radius of perhaps twenty-five miles about a hundred and sixty cases of the disease had occurred between the 25th of July and the 1st of September. Dr. Starr said he had seen about a dozen of these cases. The epidemic had first been regarded as one of cerebro-spinal meningitis, but, from the lack of sensory symptoms and from the peculiar distribution of the motor symptoms, the speaker said he regarded them as true cases of anterior poliomyelitis. Sensory symptoms had been present in some of the cases, but he had often found in anterior poliomyelitis, in patients over the age of twelve years, that hyperæsthesia and stiffness of the muscles were among the first symptoms complained of.

Dr. B. SACHS said that in France the tendency had been to regard anterior poliomyelitis as epidemic. Epidemics of the disease had been observed in Stockholm. In his own practice he had noticed that by far the larger number occurred during the warm weather. It was probable that we must include this affection among the acute infectious diseases. He had observed cases where it had been difficult at first to say whether the disease was cerebro-spinal meningitis or anterior poliomyelitis. In several cases of the latter disease, in the very early stage, pain along definite nerve tracts had been a very characteristic symptom.

Dr. A. JACOBI stated that last August he had received a letter from Dr. Caverly regarding this epidemic in Vermont, in

which he had described a number of the cases, particularly emphasizing the fact that there had been a good deal of hyperæsthesia. Basing his conclusion on these data, Dr. Jacobi said, he had expressed the opinion that the epidemic had been one of cerebro-spinal meningitis, as the manifestations of that disease differed widely at times. Since then, however, he had received more detailed information regarding the cases from Dr. Starr, who had examined many of the patients, and he now had no doubt that the epidemic had been one of anterior poliomyelitis.

Dr. A. D. ROCKWELL stated that two of these cases had been examined by him. In one the hyperæsthesia had been very distinct and he had been inclined to regard them as cases of cerebro-spinal meningitis.

Dr. STARR called attention to the fact that in the classical descriptions of anterior poliomyelitis so little mention was made of the pain and stiffness and hyperæsthesia. The reason for this probably was that so few cases of the disease were diagnosed as such until they had gone on for a week or two, and by that time the sensory symptoms had practically disappeared. If this newer pathology of the disease was correct, and it was due to a congestion of the cord, sensory symptoms were undoubtedly present.

Dr. PUTNAM said that in the case already referred to by him the hyperæsthesia had been excessive; so much so, that he could hardly doubt that peripheral neuritis had also been present. In all other respects the symptoms had been typical of anterior poliomyelitis.

Dr. JACOBI said there were two distinct classes of cases in this disease. In one class, that referred to by Dr. Starr, there were fever and hyperæsthesia at the beginning, but these symptoms were readily obscured in cases where the myelitis came on during the course of another disease—such as scarlet fever, pneumonia, etc. The acute symptoms were ascribed to the latter disease, upon recovery from which it was found that the child was paralyzed. In the other class of cases, and probably the large majority were of this character, the child was put to bed quite well and when it was taken up in the morning it was found to be paralyzed; there was no fever or hyperæsthesia; there was not even an outcry in the night.

Dr. LANDON CARTER GRAY said he agreed with Dr. Jacobi that cases of anterior poliomyelitis like those last described were very commonly met with; yet there were a certain number where the patients had unquestionable sensory symptoms, which we were often apt to attribute to a neuritis. It was a fact that this disease usually occurred during the hotter months, and this subject had been carefully studied some years ago by Dr. Weir Mitchell and Dr. Sinkler; they had also shown that chorea was not dependent on temperature, but rather on barometric fluctuations.

Dr. G. M. HAMMOND inquired whether the diagnosis in the hen had been based on the clinical symptoms or the pathological condition of the cord. In anterior poliomyelitis we were apt to associate a certain group of symptoms with certain pathological changes in the cord. In the microscopical sections exhibited by Dr. Dana the anterior horns appeared to be symmetrical and the changes did not appear exactly similar to those we found in the true disease.

Dr. DANA replied that in some of the sections, which he had been unable to bring with him, the lesion in the cord had been very marked. In some there had been a distinct loss of substance, with softening and hæmorrhage.

The PRESIDENT said that in the diagnosis between anterior poliomyelitis and cerebro-spinal meningitis the extreme muscular atrophy which we found in the former would not be so apt to be present in the latter. The electrical reactions, too, might

aid us. Sensory symptoms, he thought, were often present in anterior poliomyelitis, and were apt to be overlooked.

Some of the Important Aspects of the Therapeutics of Diseases of the Nervous System.—Dr. JAMES J. PUTNAM, of Boston, read an interesting paper on this subject. The main portion of his paper was devoted to a critical study of psychical therapeutics, or mental influence in certain forms of nervous disease, with special reference to neurasthenia. This method of treatment, he said, systematically carried out, often produced excellent results, not alone in functional, but even in organic nervous disease. Among the methods of psychical influence employed by him, the author mentioned static electricity as one of special value. As regarded electro-therapeutics in general, he was not prepared to accept the dictum of certain French writers, and assert that its benefit was wholly due to its influence on the mind. Among other forms of mental influence, Dr. Putnam mentioned waking and hypnotic suggestion; as regarded hypnotism, he stated that, while he was not particularly in favor of it, the time had come when we ought to recognize what there was of value in it. This agent should never be employed except by one who was skilled in its use, or, if the patient's own physician undertook it, he should be content to induce a moderate degree of hypnotism. In one case which had come under his observation, that of a young woman with spastic paraplegia of several years' standing, numerous attempts made to hypnotize her had never succeeded beyond the production of the first stage; through suggestions made to her while in this condition she had partially regained the use of her legs, and the improvement had been permanent.

Among other therapeutic measures referred to by the author which he had found valuable, especially among dispensary patients, where the need of better methods for the treatment of nervous diseases had long been felt, was gymnastics, including the formation of classes for calisthenics, massage, and hydro-therapeutics. During the past year he had treated fifteen cases of chronic spinal sclerosis by suspension, a method of treatment which he regarded as wholly empirical. In almost every instance these patients had declared themselves improved, as regarded both eyesight and general condition.

Dr. Putnam stated that during the past few months he had tested the Flechsig treatment of epilepsy by means of large doses of opium, and he referred to a paper on this subject by Dr. Joseph Collins (*Medical Record*, September 22, 1894). The treatment had been employed in ten cases; in none of them had the attacks been wholly checked, but in all of them an improvement had been noted. The opium had never been pushed beyond ten grains daily.

Dr. GRAY said that in some patients there was such a mixture of the symptoms of neurasthenia, hypochondriasis, and hysteria that it was difficult to distinguish one condition from the other. There were, on the other hand, cases which we might term pure neurasthenia, and it was in these cases, as he understood the paper, that the author would employ hypnotism under the broad term of suggestion. Hypnotism, in the way that it was generally used, was an agent that we could seldom employ in neurasthenia, not only because there was a prejudice against it, but also because it was difficult to impress such patients favorably by means of it. The same thing might be said about it in hypochondriasis, while, on the other hand, in hysteria its results were peculiarly favorable. As regarded the value of electro-therapeutics, Dr. Gray said he was firmly convinced that the benefit following its employment in certain conditions was by no means confined to its influence on the mind of the patient. He had over and over again seen patients with neuritis in an advanced stage improve under the galvanic and faradaic currents. He had seen marked benefit follow the use of this

agent in many cases of anterior poliomyelitis and muscular atrophy.

Dr. WILLIAM H. THOMSON referred to the value of newness or change as a psychical therapeutic measure in nervous diseases, and narrated the histories of a number of cases in which remarkable improvement had followed a change of scene and surroundings.

Dr. B. SACHS said it was alleged by some that hypnotism had not met with the reception in America which it deserved, and that one reason for this was that we were still subject to the old idea that the physician must prescribe; that we were altogether too fond of drugs. Personally, he regarded it as a therapeutic measure which was of value in comparatively few cases. After a thorough and impartial trial, his own experience with it had been anything but satisfactory.

Dr. MARY PUTNAM JACOBI stated that she had found static electricity almost a specific for dissipating muscular pains, whether rheumatic, hysterical, or other, even if such pain had entirely resisted the galvanic or faradaic currents.

Dr. ROCKWELL stated that he had employed static electricity for many years, and expressed the opinion that its value had been very much overestimated; its slight quantity gave it comparatively little value as compared with other forms of electricity.

Dr. STARR said it seemed to him that the reason why Dr. Weir Mitchell's rest treatment was so successful was that it combined most of the different elements which had been mentioned by the various speakers. There was first the expectation from a course which had been of benefit to others; this was combined with a trip to Philadelphia, a change of scene, and an entire change in the patient's daily routine of life. The speaker also referred to the value of hydrotherapeutics, which made an intense mental impression on the patient.

Dr. MARY PUTNAM JACOBI said that one writer, probably humorously inclined, had made the assertion that the beneficial effects of hydrotherapeutics were more pronounced in France than in England because no French person ever took a bath.

Dr. JOSEPH COLLINS said he had recently had the opportunity of discussing the Flechsig treatment of epilepsy with its originator, who, although not so enthusiastic regarding it as he had been at first, still considered it of great value.

AMERICAN ASSOCIATION OF GENITO-URINARY SURGEONS.

Eighth Annual Meeting, held in Washington, May 29, 30 and 31, and June 1, 1894.

The President, Dr. GEORGE CHESMORE, of San Francisco, in the Chair.

(Continued from page 664.)

Rupture of the Urethra.—Dr. FRANCIS S. WATSON, of Boston, read a paper on this subject. The first case reported was that of a sailor; fifteen days before his coming under observation his penis had been struck by the handle of a wedge, rupturing the urethra midway between the meatus and the peno-scrotal angle. The integument externally had not been ruptured. On his first attempting to urinate a small amount of water had passed from the meatus. After this he had been unable to pass any urine, which had collected under the skin, which formed an artificial bladder. A few days after the accident inflammation had set in, with perforation of the distended sac, and the urine had made its exit through two openings to the right of the symphysis, above Poupart's ligament. In this condition he had come to the hospital. The author said that the operation he had performed had consisted in draining the artificial bladder and performing perineal section, in order to prevent contact of

the urine with the injured urethra. The urethra had then been cut down upon and repaired. The man had made a good recovery and at the present time a No. 29 sound could be passed into the bladder.

Four other cases of rupture of the urethra were reported by the author. In all of these the injury had been received during coitus. In one of them the accident had been followed in a few days by extensive infiltration of urine and gangrene of the entire skin of the penis. Skin grafting by Thiersch's method had been employed and very good results had been obtained.

The Treatment of Cystitis.—Dr. GARDNER W. ALLEN, of Boston, read a paper on this subject, based on the records of a number of cases which had come under his observation during the past eight years. Many of these cases had been of gonorrhœal origin, and in nearly all the inflammation had been confined to the neck of the bladder. Extension of gonorrhœa into the neck of the bladder, accompanied by a sharp onset of urinary symptoms, was, of course, common enough. In non gonorrhœal cases the cause of the cystitis was not always clear, but in a certain number the disease was apparently traceable to a posterior urethral catarrh resulting from congestion of the prostatic portion, with or without inflammation of the seminal vesicles, and brought about by prolonged and repeated sexual excitement. It began insidiously, had little or no tendency to recovery, and was apt to prove intractable to treatment.

As regarded the treatment of cystitis, of the various internal remedies the author said that he preferred the saline diuretics, especially benzoate of sodium. Few surgeons nowadays, however, long deferred local treatment of the disease. For the simple purpose of washing out the bladder, perhaps a saturated solution of boric acid gave, on the whole, the best results. For the purpose of producing a decided impression upon the mucous membrane of the vesical neck the author said that he had had very gratifying experience with nitrate of silver and permanganate of potassium. Of the nitrate of silver, he rarely used it stronger than in a one-per-cent. solution, injecting from ten to fifteen minims. The injections appeared to be more effectual if preceded immediately by the passage of a large sound, excepting in the more acute cases. Permanganate of potassium he had found to be very efficacious in cystitis and chronic prostatitis. Where it failed nitrate of silver often succeeded, and *vice versa*. The bladder should be thoroughly irrigated with the permanganate solution (1 to 4,000 or 1 to 5,000), and this was conveniently done by means of a large Uitzmann syringe connected with a soft-rubber catheter. One syringeful at a time was injected and allowed to flow out again, and this was repeated until the solution came away with its color unchanged. Then two or three ounces were injected and left in the bladder as long as they could be comfortably borne. The author then detailed the histories of a number of cases of cystitis that had come under his observation.

Dr. BRANSFORD LEWIS, of St. Louis, said that according to his experience none of these various remedies mentioned by Dr. Allen could be depended on in every case. In some instances the benefit derived from their use was not observed until after it had been discontinued.

Dr. MARTIN stated that the new antiseptic remedy, tricrosol, promised to be very useful in this class of cases. It was a powerful antiseptic and caused very slight irritation.

Aero-urethroscopy, with a New Instrument.—Dr. WILLIAM K. OTIS, of New York, read a short paper on this subject, and exhibited an improved instrument. He stated that, while aero-urethroscopy would no doubt often render a diagnosis possible in obscure cases, our methods were still very imperfect. The view obtained of the urethra was hazy and unsatisfactory,

and for the purpose of making topical applications the urethral speculum was equally good. He also exhibited an instrument which he had devised for the purpose of facilitating catheterism of the male ureters.

Dr. BELFIELD showed an instrument which he had devised for the purpose of securing a view of the deep urethra. Also a longer one, by which a good view of the bladder might be obtained in the region of the trigone.

Dr. F. TILDEN BROWN, of New York, exhibited a perineal tube-holder intended for cases in which long-continued drainage of the bladder through the perinæum was indicated.

Dr. Brown showed, too, a modification of the Clover crutch for perineal operations, also an improved needle-holder.

Stone in the Bladder; the Choice of Operation.—Dr. WILLIAM H. HINGSTON, of Montreal, read a paper with this title, in which he gave the following conclusions:

He would choose lithotripsy in all cases of adults where the stone was neither too large nor too hard for the lithotrite. By lithotripsy, he said, he meant the more perfect method which had been foreshadowed by Mercier in France and brought to its highest perfection in America. He would choose lithotripsy where the urethra was or could be made sufficiently capacious for the crushing instrument, also in children, however young, where the urethra would permit the passage of a crushing instrument. In very young children the cutting operation was preferable. The age at which lithotripsy was possible must vary with the caliber of the canal, which in young children greatly varied. When the urethra in the child was not and could not be made fit to receive the lithotrite, the cutting operation to be chosen was the lateral method.

In cases of stone in the aged, where an enlarged prostate prevented the stone being seized, we should act as if the stone were of large size and incapable of reduction, and proceed to operate by the suprapubic method. Surgical interference in cases of calculus in the female remained the same as heretofore. The method employed years ago by Erichsen, Thompson, and others had since been followed, and stones of large size were removable generally *per vias naturales* after dilatation. In cases of exceptionally large calculi the lithotrite commonly sufficed, and rarely indeed was the surgeon obliged to resort to the knife.

The PRESIDENT said that in cases where we found the bladder stretched cap-like over the enlarged prostate, a small stone might evade every possible instrument which we could introduce through the perineal incision. He had never encountered a stone weighing more than a thousand grains. Calculi nowadays did not seem to attain the large size they did in former years. This was probably due to the fact that patients sought relief earlier now than they did formerly.

Dr. ABNER POST, of Boston, said that during the past year he had had a patient under his care who had been also affected with hip disease from childhood. On account of the attitude of the limbs it had been impossible to get him into the litholapaxy posture, and he could not be operated on through the perinæum. The bladder had accordingly been opened above the pubes.

Dr. BANGS said that in some of these cases it might be necessary to make such a choice of a cutting operation, so that the bladder and pelves of the kidneys might be properly drained.

Dr. JUDKINS referred to a case in which one of the stitches in a suprapubic wound had been torn out during a fit of coughing, and some time afterward the stitch had been passed *per urethram*, thickly covered with phosphatic deposits.

Dr. BRYSON said that he had operated in a number of cases in which the stone had rested behind the prostate, which had obstructed the outflow of urine and had set up cystitis; in two of those cases he had afterward been compelled to do a cut-

ting operation, the distinct object in view being to remove the obstruction which had produced the cystitis and which had resulted in the formation of secondary calculi.

Dr. HINGSTON said that he was not wedded to any particular method of operating. He expressed the opinion that there was no condition of the kidney or bladder in which lithotomy was not as good an operation as lithotomy. He did not care what the condition of the urine was, whether it was loaded with pus or not. The source of the trouble was the stone and it should be removed.

Urine Leakage and Stricture Formation.—In a paper on this subject Dr. J. P. BRYSON, of St. Louis, made a comparative study of the histology of stricture of the urethra and that of an old urinary fistula, and illustrated it with a number of drawings of microscopical sections. His conclusions were as follows:

1. The close resemblance in the tissue elements, their arrangement and effects upon the related normal structures, pointed to an identity of the ætiological factor, and gave support to the doctrine of urine leakage.

2. Observing the prolongation of the urethral epithelium on the fistula wall in an effort to create an adequate artificial channel for urine, and seeing that the epithelium lining the stricture also participated in the battle against urine leakage, we might take fresh hope of radically curing strictures, even of the pendulous urethra, by such means as tended to restore or rehabilitate the urethral lining.

3. Merely diverting the stream of urine for a time, without such restoration of the lining mucous membrane, would fall into the category of the palliative treatment along with urethrotomy and the various methods of dilatation.

Dr. R. W. TAYLOR, of New York, said that the title inflammatory stricture could only be applied in cases where there was a round-celled infiltration in a still lingering state of congestion and inflammation. The inflammatory stage of the stricture was that during which exudation was present. The pathological conditions found in these cases hardly warranted the theory of urine leakage suggested in the paper, which thus far must be regarded as pure assumption.

Dr. BRYSON said that he did not contend that the doctrine of urine leakage was definitely settled. He simply presented his paper as a comparative study on the subject.

The Possibility of Overcoming Permanent Stricture of the Deep Urethra without Resort to External Urethrotomy.—In a paper on this subject, Dr. J. BLAKE WHITE, of New York, stated that to determine by the usual methods of examination whether or not a deep stricture required surgical interference for its relief could not by any means be regarded as an easy matter. A distinct and positive diagnosis was rarely possible until every obstruction in the anterior urethra had been detected and wholly removed. A number of instances had come under his observation in which, having reason to doubt the genuineness of the deep obstruction, he had deferred perineal section, and when a sufficient time had elapsed after incision of the meatus—either alone or associated with internal urethrotomy—he had been gratified to find that what had seemed to be an impassable stricture in the deeper portion of the urethra had yielded readily to the passage of an instrument of full size. Experience had repeatedly demonstrated that large-sized sounds had been immediately admitted along the entire urethral tract after simple division of the meatus, when previously an attempt to introduce the smallest filiform bougie had met with unyielding resistance. This fact proved the possible existence of spasm in that part of the urethra especially prone to such phenomena. If the possible existence of an uncomplicated local spasm along the urethral canal was admitted, we must also recognize the possibility of a continuance of urethral ere-

thism, especially in certain cases, for a considerable period after the immediate causes of reflected irritation had been removed. The character of the lesion, always associated with some degree of spasm, was such that it might be overcome by patient dilatation after the remote causes of spasmodic contraction had been removed by appropriate treatment. He then gave the history of a case in which there had been constant spasm of the urethra combined with a deep, non-traumatic stricture, which had been relieved by careful dilatation with graduated sounds after the obstructions in the anterior urethra had been removed.

Dr. TAYLOR said that spasm of the *compressor urethræ* muscle was a great bugbear. It was assumed that this muscle was in a continual state of great tonicity. As a matter of fact, this was not so, and in the great majority of cases a soft catheter could be passed into the posterior urethra with little or no trouble. As a result of inflammation in the anterior urethra the compressor muscle undoubtedly did contract, and this constituted spasmodic stricture. It was possible that some of the spasm in Dr. White's cases had been due to the use of instruments.

Dr. WATSON said that, while he did not favor the division of strictures in the deep urethra, he did not know where the idea had originated that the operation was attended by a high mortality rate. He thought one per cent. was the highest mortality rate reported.

Dr. W. K. OTIS said that both Sir Henry Thompson and Dr. Bulkley had abandoned the operation because of the high mortality.

Dr. TAYLOR said that the late Dr. Van Buren and Dr. F. N. Otis had given it up for the same reason.

Dr. BRYSON said that he regarded dilatation as a most rational and scientific method in the treatment of stricture, and very few strictures failed to yield to careful and intermittent dilatation. Certainly by mere division of the stricture we accomplished nothing.

Dr. HINGSTON said that in the treatment of stricture he favored the method adopted by Dr. F. N. Otis—that was, gentle dilatation, occasionally with division.

Dr. F. TILDEN BROWN said that Dr. White, in his paper, had reported an example of a very clear-cut type of cases. He did not see why such conditions of spasm—or partly spasm and partly cellular infiltration—should be regarded as the outcome of the use of instruments.

Dr. W. K. OTIS said there was no doubt that most strictures could be dilated to a certain point. In some cases, however, cutting would give more permanent benefit. As regarded spasmodic stricture, he had seen many such cases which he did not think were due to the use of instruments.

Dr. WHITE said he was positive that in the case reported by him the spasmodic stricture could not be attributed to such a cause.

(To be continued.)

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Meeting of October 22, 1894.

The President, Dr. SENECA D. POWELL, in the Chair.

Pubic Symphysiotomy.—Dr. H. J. GARRIGUES read a paper on this subject and reported a new case. He then considered the statistics of modern symphysiotomy. In two hundred and thirteen cases reported between 1887 and 1893, one hundred and eighty-three mothers had recovered and twenty-seven had died, and in three cases the result was unknown. This made the maternal mortality 12.85 per cent. The result among the children was unknown in eight cases; of the remaining two

hundred and five children, seven had died before the operation and nine during the operation, while one hundred and fifty-eight had certainly been saved. The infant mortality was really 4.54 per cent., although, if we counted those that died a few days afterward, the mortality would be increased to 20.2 per cent. These operations had been done by a great many different operators, and, as a rule, they had not been specially skilled in the operation. Pinard had operated eighteen times and Zweifel twenty-three times without losing a single mother. Under the most favorable conditions there was practically no maternal mortality, and, although the outlook for the child was not so good, it was better than by other methods. Several operators had reported cases in which the urethra, bladder, and vagina had been torn during the operation. Such accidents were, of course, more apt to occur in primiparæ. They could be avoided to a great extent by slow extraction, if necessary by performing episiotomy, and by the assistant holding these soft parts to one side. It could not be denied, however, that a certain number of these women had a waddling gait; thus, Zweifel had three such results in twenty-three cases. Although such a gait did not look well, it did not prevent the woman from earning her living by hard physical work.

The author expressed the opinion that the operation of symphysiotomy should have a wide range of usefulness in lying-in hospitals. In the flat pelvis an easy delivery should be expected when the conjugate was three inches. In a flat pelvis the upper limit for the operation should be three inches and a half, and in a generally contracted pelvis, even four inches. It should be borne in mind that in this country the average weight of the child at birth was greater than in Europe, so that the upper limit of symphysiotomy for this country should be higher than abroad. Thus, Lusk placed the average weight of a child at birth at seven pounds and a half; Tarnier at seven, and Plavfair at six and a half. The induction of premature labor gave a maternal mortality of five per cent. as against thirteen per cent. in symphysiotomy, but the infantile mortality was very high—some even placed it as high as sixty-six per cent. There would be, of course, many cases in which the patient would not come under observation sufficiently early to make this procedure serviceable. Among the most skillful operators the mortality from symphysiotomy was practically nothing, whereas the mortality from Cæsarean section was eight per cent. Symphysiotomy, the author said, had even competed successfully with the Porro operation. He believed that even difficult forceps operations and versions should be superseded by symphysiotomy. With a conjugate less than three inches both the high forceps operation and version presented greater dangers than symphysiotomy, to say nothing of the evil after-effects of difficult forceps delivery on the child's intellect.

Referring to the technique, the reader of the paper stated that it was not at all necessary to wire the divided ends of the bone; an adhesive-plaster support was sufficient. It was desirable to place a drainage-tube at first behind the symphysis. No one should undertake this operation who was not an operative gynaecologist or a general surgeon. In some cases very serious hæmorrhage had occurred, and in most instances active treatment had been necessary to save the child. As it was difficult to perform such an operation aseptically in a private house, particularly among the poor, the chances of a good result were far better in hospital practice.

Dr. EGBERT H. GRANDIN said that prior to the revival of this operation in 1890 through the efforts of Pinard, of Paris, and Harris, of Philadelphia, he had been exceedingly skeptical as to its value. Personal experience, however, in two successful cases, and experience acquired in assisting colleagues in three other successful cases, had proved to him that this pro-

cedure was a distinct advance in the obstetric art. He did not believe that as yet we fully understood its importance and significance. If properly elected by competent men, it meant that embryotomy on the living fœtus had been relegated to the past, and that we were no longer compelled to take life to save life. Symphysiotomy stood between embryotomy and Cæsarean section under the relative indication to save the fœtus, and it did not imperil the woman, unless the operation was done improperly. So far, he felt that no one in this country was in a position to speak dogmatically of this operation, for too few operations had been done here, and these chiefly by experienced surgeons. He felt that in time this operation would be resorted to by the general practitioner. One prerequisite of this, however, would be a better understanding of the obstetric art, for accurate pelvimetry must precede such operative interference. It should be understood by the general practitioner that when the head did not readily engage, there was a disproportion between the fœtal head and the maternal parts; and then, instead of wasting time, he should at once resort to symphysiotomy.

The open method laid bare the lymphatics, and, if the technique was not perfect, the woman was sure to become septic. Given a pelvis where the pubic symphysis was fairly in the median line, and the sacro-iliac synchondroses were not ankylosed, the average physician capable of practicing obstetrics should be capable of properly performing symphysiotomy. He considered the Galviatti knife an unnecessary and dangerous instrument for this operation. A short incision should be made above the suprapubic eminence, the recti separated by the fingers, and the finger inserted into the supravescical space; then with a stout, blunt-pointed bistoury the operator should cut from above downward, and from without inward. Of course, by this method of operating the surgeon ran the risk of injuring his own finger. He thought the maternal mortality rate would not be found to be so high as those cited in the paper when the operation was done under the conditions which he had just stated. There should not be either a maternal or an infant mortality rate.

Dr. HENRY C. COE agreed with the previous speaker that we were not yet able to speak dogmatically on this subject. He had had only three cases himself, but he was by no means so enthusiastic as the preceding speaker, for he had noticed great difficulty in extracting the child. These children had all been turned and extracted by the feet, but he had been disappointed at the amount of gain in space afforded by the operation. He would not do a symphysiotomy with a conjugate diameter of two inches and a half—he would do a Cæsarean section. Even with a conjugate diameter of three inches and a half he would not do symphysiotomy except at an early stage of labor. Symphysiotomy itself was a simple procedure, but he did not believe in working in the dark in this operation. He was as yet undecided as to the best method of extracting the child. There was usually considerable delay in liberating the head. He stated that it was his belief that the operation in this country was still *sub judice*.

Dr. CHARLES JEWETT, of Brooklyn, said that the operation of symphysiotomy in comparison with Cæsarean section labored under one or two important disadvantages, particularly in the fact that a proper choice of the cases of symphysiotomy required a very accurate estimate of the capacity of the pelvis and of the size of the child's head. In Cæsarean section, if the operator was satisfied that a living child could not be extracted through the natural passages and that the woman was in a fair condition, he was likely to be successful even if he had made a mistake in his measurements. The limit for symphysiotomy was a very small one—half an inch or a little more. From these considerations it would seem that symphysiotomy

was an operation suited chiefly to the expert. Another disadvantage was the after-care of the case—the difficulty in keeping the parts in proper coaptation and of keeping the wound clean and uncontaminated by the discharges. It was as yet too early to determine the relative value of the operation from statistics—the operation was too young in this country. The difficulty in extracting the child, it seemed to him, was chiefly due to our very meager knowledge of the subject. He favored beginning the operation by a very small incision so located that the lower end of it should be at the level of the top of the symphysis. It could be lengthened afterward if necessary. An opening having been made through the space between the recti muscles, an ordinary blunt-pointed bistoury could be carried down behind the joint without any special danger of injuring the utero-pubic vessels. The knife could easily be engaged in the upper end of the pubes, and then carried from above downward and from within outward. The yielding of the pubic bone furnished a sufficient index as to the point where the incision should be stopped.

Dr ROBERT A. MURRAY said that he had been particularly pleased with the very moderate way in which the operation had been described and advocated by the author of the paper. In Europe, a reputation of performing this operation had been established at certain centers, so that a few surgeons had had a much larger experience with the operation than we could hope to have in this country. The statistics cited in the paper had been taken from those who had become expert in this operation and in abdominal surgery. He had understood that there was a feeling in Germany that the operation should be kept entirely in the hands of experts. The great difficulty was in the accuracy with which the indications for the operation must be determined. In all the cases which he had seen the extraction of the child had had to be effected by version. This was very different from the experience of Morrisani, who had extracted the children by forceps, and who had stated that where version was necessary for extraction, the case was not a very suitable one for symphysiotomy. It should be remembered also that by doing symphysiotomy we not only enlarged the conjugate, but broadened the oblique and the transverse diameters of the pelvis. This had been well shown in a model constructed and exhibited by Dr. J. E. Kelly. It was quite common in this country to observe the right occipito-posterior position in cases where there were large children. In such cases it would seem that a prompt resort to symphysiotomy and extraction would greatly improve the chances for the child. The point raised by the author concerning the relatively larger children born in this country was well taken, and was most important when considered in connection with symphysiotomy. The two great requisites for the success of symphysiotomy were freedom from sepsis and a mother not already exhausted by a tedious labor and prolonged efforts at delivery. He did not favor the use of the Galviatti knife. It had been found in two cases that a piece of pubic bone had been sliced off and had remained in the wound as a foreign body, thus keeping up a suppurating sinus for a long time. As the object of symphysiotomy was the birth of a live child, the operation was the rival of the elective Cæsarean section. This implied careful pelvimetry. In this connection he would again remind the practitioner that examination as to the size of the pelvis was greatly facilitated by introducing the whole hand instead of only one or two fingers. He thought it was wise to suture the periosteum, but not the bone. It was also well to insert an iodoform-gauze drain.

Dr. GARRIGUES said that the Galviatti knife looked formidable, and he had at first been almost afraid to use it. He had been greatly surprised, however, in his practical acquaintance

with this instrument. Wherever it was possible to avoid delivery by turning, this should be done. The chances of the child would be better. In private practice it was very difficult to secure proper assistance. He thought it was certainly safe to place the lower limit of symphysiotomy at a conjugate diameter of three inches. There were always large veins lying behind the symphysis pubis which would necessarily be severed in the operation, and in many cases the dorsal artery of the clitoris had been wounded. He could not but feel that the chances of success were much greater in hospital practice. The commonest kind of pelvic deformity in this part of the country was the generally contracted pelvis, and hence symphysiotomy was of peculiar interest to us.

Miscellany.

Fracture of the Hyoid Bone.—The *Lancet* for December 8th contains an account of a case which had come under the observation of Mr. Henry Kay Ramsden, of Guernsey. The patient, a man fifty years old, fell a distance of four yards and struck on his head. He was feverish and delirious for fourteen days. He could speak with difficulty, but was unintelligible; he was almost unable to swallow solid food and liquids, and saliva dribbled constantly from the angles of his mouth. On examination, the author found the hyoid bone fractured in two places—at the junction of the body and the greater cornu on each side. Subsequently he observed that the right half of the tongue had become atrophied. The tongue was turned to the right when the patient protruded it. The lips, also, were slightly wasted. The speech was nasal, inarticulate, and unintelligible, and when the man tried to swallow liquids they frequently regurgitated through the nose. The treatment consisted in the wearing of stiff collars, attention to the general health, and the administration of tonics, especially iron and strychnine. The tongue gradually increased in bulk, and speech and swallowing slowly improved, so that solid food could be taken. At the present time, says Mr. Ramsden, although the speech is impaired, the patient can be understood easily, and the dribbling of saliva has disappeared; he can blow and whistle, and, with the exception of an occasional pain in the neck, is well. The fractures united by fibrous union.

Mr. Ramsden considers this case a very interesting one, as fracture of the hyoid bone is rare, especially from indirect violence, for the patient fell on his head with the neck forcibly flexed, causing such muscular action as to break the bone. The double fracture of the bone is worthy of note, he says, and the question of diagnosis affords some points of interest; it rests between acute bulbar paralysis, injury of the hypoglossal nerve at the seat of the fracture, hæmorrhage into the vagus center, and labio-glosso-laryngeal paralysis. Labio-glosso-laryngeal paralysis, he remarks, is always fatal and is progressive in its course. Hæmorrhage into the vagus center would account for the difficulty of speech and swallowing, but would not account for the atrophy. Besides, says the author, there was no vomiting or any other symptom pointing to the vagus. The difficulty of swallowing and the altered speech would not have been so extreme in unilateral lesion of the hypoglossal nerve, although the complication of the fractured hyoid bone would increase these symptoms. The extreme symptoms are in favor of acute bulbar paralysis. There were no epileptoid convulsions, and the arms and legs were not affected. These symptoms, says Mr. Ramsden, are by no means always present in

acute bulbar paralysis. Impaired recovery of speech and swallowing may be assigned to the fibrous union of the bone, which would interfere with the movements of the tongue; but impaired recovery is common in acute bulbar paralysis. The actual lesion in the medulla oblongata was embolism or hæmorrhage, since the symptoms came on so quickly—most probably hæmorrhage occurring at the time of the accident.

The Treatment of Hog Cholera and Swine Plague.—In a pamphlet entitled *Hog Cholera and Swine Plague*, by Dr. D. E. Salmon, chief of the Bureau of Animal Industry, recently issued by the Government Printing Office, we find the following:

"Can hog cholera be cured? and, if so, what remedy will restore the diseased animals to health? These are the first questions asked by the swine-grower, and to his mind this should be the objective point of all investigations. With all diseases of this class, however, prevention is cheaper and in every way more satisfactory than medical treatment. The great aim of the Government and the farmers should be, therefore, to prevent the spread of infectious diseases. Every swine-grower should use the utmost precautions to prevent the introduction of these plagues into his herd. In spite of such preventive measures many herds will become infected. Until the Federal Government or the individual States enforce measures of eradication, it is, consequently, legitimate to ask and to answer the question as to the proper medical treatment.

"Before formulating this treatment it should be explained that a remedy which will cure every case is not to be expected. There has never been discovered a remedy for a single one of the infectious diseases of man or animals which will cure every individual attacked. Some forms of these diseases are so violent and rapid that the animals are dead almost before they are observed to be sick. Under such conditions there is not time for the most active remedy to produce a beneficial effect.

"In many outbreaks the type of the malady is less virulent and there is time to treat the animals after they are sick, and also the whole herd after some members of it have shown that they are diseased. For a long time after beginning the investigations of the infectious diseases of swine the writer was doubtful if any remedy or combination of remedies could be made which would produce any marked effect. The experiments of the last year, however, indicate that treatment if properly applied may be successful. With the assistance of Dr. E. A. de Schweinitz, chemist of the bureau, and Dr. V. A. Norgaard, inspector, a number of formulas have been developed and used in the field with good results.

"The most efficacious formula which has been tried is the following:

	Pounds.
" Wood charcoal.....	1
" Sulphur.....	1
" Sodium chloride.....	2
" Sodium bicarbonate.....	2
" Sodium hyposulphite.....	2
" Sodium sulphate.....	1
" Antimony sulphide.....	1

"These ingredients should be completely pulverized and thoroughly mixed.

"The dose of this mixture is a large tablespoonful for each two hundred pounds' weight of hogs to be treated, and it should be given only once a day. When hogs are affected with these diseases they should not be fed on corn alone, but they should have at least once a day soft feed, made by mixing bran and middlings, or middlings and corn meal, or ground oats and corn, or crushed wheat with hot water, and then stirring into

this the proper quantity of the medicine. Hogs are fond of this mixture, it increases their appetite, and when they once taste of food with which it has been mixed they will eat it though nothing else would tempt them.

"Animals that are very sick and that will not come to the feed should be drenched with the medicine shaken up with water. Great care should be exercised in drenching hogs or they will be suffocated. Do not turn the hog on its back to drench it, but pull the cheek away from the teeth so as to form a pouch, into which the medicine may be slowly poured. It will flow from the cheek into the mouth, and when the hog finds out what it is, it will stop squealing and swallow. In our experiments hogs which were so sick that they would eat nothing have commenced to eat very soon after getting a dose of the remedy, and have steadily improved until they appeared perfectly well.

"This medicine may also be used as a preventive of these diseases, and for this purpose should be put in the feed of the whole herd. Care should of course be observed to see that each animal receives its proper share. In cases where it has been given a fair trial it has apparently cured most of the animals which were sick and has stopped the progress of the disease in the herds. It also appears to be an excellent appetizer and stimulant of the processes of digestion and assimilation, and when given to unthrifty hogs it increases the appetite and causes them to take on flesh and assume a thrifty appearance.

"This is a *résumé* of the reports from the tests of this medicine during the last year, and while I should prefer, from a scientific point of view, to continue these experiments for another year before venturing to recommend it as a remedy for these diseases, the many urgent requests which have been made upon me for the formula lead me to give it in time for it to be tried by our farmers during the current year. Those who are interested in this subject are earnestly requested to try this mixture and report their results to this bureau for the benefit of the hog-raising industry.

"Success or failure with this remedy depends largely upon the manner in which it is used. If it is improperly administered, or the hogs left out in cold storms and compelled to remain day and night in mud six inches or a foot deep, under the necessity of searching through this mud to find an ear of corn in order to get anything to eat, the farmer might as well save his money and let his hogs die, as nothing which we have been able to find will save them under such conditions. If, on the other hand, the sick animals can be made reasonably comfortable, and given soft, easily digested food to eat, the medicine, of which we have just given the formula, may be used with confidence that it will give good returns for its cost and the trouble of its administration.

"In treating hogs for these diseases it must not be forgotten that in nearly all cases there is more or less inflammation of the internal organs, and particularly of the stomach and intestines. To treat such diseases successfully the animals should be kept dry and comfortable, and where drafts of air will not blow upon them. The food must be such as can be digested by the irritated and inflamed organs which are charged with this function. With these general principles in mind the farmer may undertake to treat his sick hogs with a fair prospect of success. He may not save them all, but he should be able to preserve a good proportion of them.

"The question now arises, What disposition should be made of the hogs during treatment, and what sanitary measures should be adopted in addition to the medical treatment? When the hogs are first found to be affected with hog cholera or swine plague the lot or pens where they have been confined

should be disinfected by dusting plentifully with dry, air-slaked lime, or by sprinkling with a five-per-cent. solution of crude carbolic acid. The animals should then all be moved to new quarters. If possible, the sick and apparently well should be separated before they are moved and then put into different lots. This is not essential, but it is an aid to the treatment. The hogs should be kept in dry lots, or pens, where there is no mud, and, *above all*, no stagnant water. It is well to keep these lots disinfected by the free use of air-slaked lime or carbolic acid.

"It is not expected by this supplementary treatment that the hogs will be entirely removed from the influence and attacks of germs. This is not necessary. The number of germs which gain access to their bodies may be so reduced by following this plan, however, that the vital force of the system, assisted by the medicine, is sufficient to overcome them.

"During this treatment the hogs gain a marked degree of immunity. No doubt this is the result of attacks of the disease from which they recover. This recovery is in spite of the continued infection of the premises, and even though the hogs which have gone through the outbreak are apparently well and thriving, new hogs added to the herd are liable to be attacked. For this reason five or six months should be allowed to pass before any new hogs are purchased and brought on the premises or before any are sold to be put among other lots of hogs. Young pigs born under such conditions in some cases are able to resist the infection, while in other cases they may suffer severely or die.

"If any hogs die during the progress of the outbreak their carcasses should be immediately burned or deeply buried, and the places where they have lain or the ground over which they are dragged should be disinfected with carbolic acid or lime according to the method already mentioned."

The Late Dr. John W. Pinkham.—At a special meeting of the medical and surgical staff of the Mountinside Hospital the following resolutions were passed:

Whereas, We, the members of the medical and surgical staff of the Mountinside Hospital, of Bloomfield and Montclair, New Jersey, have learned with deep sorrow of the death of our colleague, Dr. John Warren Pinkham, therefore be it

Resolved, That in the death of Dr. Pinkham we acknowledge the loss from our members of one of our ablest and most conscientious practitioners and one of our favorites, both as a gentleman and as a friend.

Resolved, That, as members of the same profession, we unite in honoring his memory and in retaining in our recollection a kind and grateful remembrance of his many good, genial, and excellent qualities.

Resolved, That we extend our sympathies to his bereaved family, and that these resolutions be incorporated in the minutes of this body and copies of them be sent to Mrs. Pinkham, to the local press, and to the *Medical Record* and the *New York Medical Journal* for publication.

[Signed.]

JOHN J. H. LOVE, *President*.

RICHARD P. FRANCIS, *Secretary*.

The Prevalence of Tuberculosis among Cattle and its Eradication.—The *Journal of Comparative Medicine and Veterinary Archives* for October contains an article on this subject by Dr. M. R. Trumbower, who says that the fatality among cattle from this disease is not so great as to create a general demand for legal measures to protect breeders and dairy-men against losses; the demand is made as a public health measure. He does not wish to be understood as being opposed to the destruction of tuberculous cattle, but he does believe that the danger to human life, by eating the meat and drinking the

milk from tuberculous cattle, is very greatly exaggerated by many of the medical profession. In the consideration of this subject, says the author, sentiment must be laid aside and practical conclusions arrived at that are capable of being carried into effect without becoming abortive in our hands. Dairy-men are suspicious and jealous of their rights, and if active measures are enforced, involving the business of the dairy-men in the destruction of a part of their herds, before they recognize the justice of such proceedings, only a miserable failure will be the result and all practical efforts endangered for the next generation. In the medical profession this matter of sanitary protection against tuberculosis infection is in its infancy; by many of them the dangers are depicted in a horrifying manner, and by others they are almost entirely ignored. While this agitation regarding the prevalence of tuberculosis among cattle is a legitimate and proper one, we should be guarded in our assertions and avoid magnifying a fact that is sufficiently serious to be worthy of our attention when viewed in the light of truth. There are some who have dwelt upon the great danger resulting from the consumption of meat and milk, a danger that has been unduly exaggerated. If this is continued it will result in closing all foreign markets against the beef and dairy products of our country, for it will lead foreign nations to believe that all our herds are largely tuberculous. Why, asks the author, lay so much blame upon milk from cows by the presumption that many thousand infants die annually from intestinal tuberculosis as the result of milk infection, when it is acknowledged that seven per cent. of the human family is consumptive? Very few cases, he says, are recorded in which cow's milk was the known cause of the disease.

The author is well satisfied that in Illinois the percentage of tuberculous animals is not the same as in Massachusetts or in any other of the eastern States. The cattle are kept under different, better, and more natural conditions. Their lives are more active, they are not so closely housed, there is far less exposure to contamination, and, above all, they are not inbred so much as many dairy herds of the older States. The majority of the cows are used only one or two years in the dairy, and then fattened for beef while yet young, and nearly all of them are sold and slaughtered before they have gained maturity; hence, says Dr. Trumbower, rarely is any evidence found of tuberculosis among them.

If the eradication of tuberculosis is undertaken, an endless task is assumed, for, if one or forty per cent. of dairy cattle are destroyed, they will have to be replaced by an equal number, which, in turn, may be infected with tuberculosis; many cattle barns, also, would have to be abandoned or destroyed. There is only one way, says the writer, by which any progress can be made in the West toward lessening the prevalence of this malady, and that is to provide, by special enactment, laws for the inspection of all cattle that are used for supplying milk to cities, towns, and villages. The author thinks that, in the West, the best results can be obtained by disseminating reliable information, so as to arouse a public sentiment that will eventually lead to the desired end. In the meantime, he says, in the State of Illinois, inspections will be made, as heretofore, of herds that are reported to be tuberculous, and the prohibition of the sale of milk from such herds be earnestly advised until the affected animals have been killed.

With regard to the tuberculin test, Dr. Trumbower asks if we are justified in condemning as unfit for food the carcass of every animal that has reacted to this test. Would not a great deal of valuable and productive property be needlessly destroyed? He does not believe that the milk or flesh is dangerously infected in an animal that has only a small deposit in the mediastinum or an encysted abscess in the liver. This can not

be determined in the lifetime of the animal; therefore all have to be destroyed that react to the test, or else only those which manifest some physical evidence of the disease on examination. Would not the latter method, he says, be practically sufficient and more satisfactory? Re-examinations would have to be made oftener, but the antagonism and enmity of the owner would be avoided, and would eventually lead to submission, on his part, to any measure that might subsequently be advocated.

The Treatment to be Employed in Accidents Due to Electricity.—At a recent meeting of the *Académie de médecine*, a report of which appears in the *Journal des praticiens* for December 8th, a paper was read on the treatment of such accidents, in which the following methods were recommended in order to establish respiration: 1. Rhythmical traction of the tongue. This treatment consists in opening the patient's mouth (if the teeth are locked, forcing them open), and then seizing the anterior part of the tongue firmly between the fingers of the right hand, covered with a piece of linen cloth in order to prevent slipping, and making strong and repeated rhythmical tractions, each followed by relaxation, imitating the rhythmical movements of respiration, twenty times at least to the minute. The lingual tractions should be practiced without delay and persistently for half an hour, an hour, or longer. 2. Artificial respiration. This treatment consists in putting the patient on his back, with the shoulders slightly raised, the mouth open, and the tongue well disengaged. The arms should be seized as high as the elbows and pressed rather firmly on the walls of the chest, then separated and carried above the head, describing a circle; afterward they are brought to their first position on the chest. These movements should be repeated about twenty times a minute, and continued until natural respiration is established.

It is advisable to begin always with traction on the tongue, applying at the same time, if it is possible, artificial respiration. On the other hand, it is equally advisable to try to revive the circulation by applying friction to the surface of the body, by striking the body with the hands or with wet napkins, by throwing cold water on the patient from time to time, and by making him inhale ammonia or the fumes of vinegar.

The Treatment of Stridulous Laryngitis in Children.—The *Journal des praticiens* for December 1st contains an article on this subject by M. Huchard, who remarks that the opinion that stridulous laryngitis in children is always a benign disease should not be credited too much. Trousseau cited cases in which tracheotomy had to be performed, and M. Huchard himself has observed the case of a child in whom cyanosis and asphyxia were so intense that tracheotomy had to be done. In other cases coming under his observation surgical intervention had not been resorted to, although the intensity of the symptoms had been remarkable, the laryngeal spasms occurring nearly without remission for three consecutive days and nights; the voice had been nearly inaudible, and dyspnea and cyanosis had been considerable. M. Cadet de Gassicourt has also reported similar cases. Finally, in a recent thesis, M. Touchard has made a *résumé* of some interesting facts and divided them as follows: 1. Cases in which tracheotomy had been performed, with recovery. 2. Cases in which death had resulted because tracheotomy had not been performed. 3. Very serious cases in which surgical intervention had not been necessary. 4. Benign cases where *tirage* had existed, but with less intensity of the symptoms.

M. Huchard does not discuss the question of whether or not this affection is the result of transitory tumefactions of the glottic mucous membrane, if it is due to mechanical stenosis caused by the accumulation of mucus near the glottis, or if this

laryngitis is first localized in the subglottic portion of the larynx. It is known, he says, that stridulous laryngitis is composed of two elements, inflammation and spasm of the larynx, and the danger in these cases is the spasm and not the inflammation, which may be slight or intense without increasing the gravity of the case. Before surgical intervention is resorted to, however, early medical treatment should be instituted. M. Huchard does not hesitate to prescribe sixty or even seventy-five grains of potassium bromide a day for a child four years and a half old, given in large doses; it is important, however, that these doses should be given in the beginning, without fear of toxic accidents, in order to insure prompt and sure sedation of the glottic reflexes. This treatment must be continued for from five to eight days at the least, for clinical experience has shown that the attacks of false croup may be repeated for several nights. Such is the necessary medical treatment of stridulous laryngitis, whether benign or serious. With regard to surgical intervention, one must resort to the last extremity when all medical means have been exhausted, and when there is danger of asphyxia. The two methods of surgical treatment are tracheotomy and intubation of the larynx.

It must not be forgotten, says M. Huchard, that during measles very serious forms of acute laryngitis, which simulate croup, may be observed at three periods: in the beginning, when the eruption appears, and during convalescence.

Cæsarean Section Performed by Mistake.—Loviot (*Répert. univ. d'obstét. et de gynec.*, Sept. 25, 1894) early this year examined, with the patient's consent, a wet nurse suspected of being pregnant. He recognized pregnancy at the third month. A few months later he heard that his patient did not believe that she was pregnant, and that she had been admitted into a hospital, where an operation was performed. A live infant was discovered. On making inquiries, Loviot found that abdominal section had really been undertaken. The surgeon and also the obstetrician of the hospital gave evidence as to the patient's statement that in her capacity of wet nurse she had not menstruated, and could not be pregnant. Relying too readily on the patient's assertions, an operation was performed, with the result as above stated.—*British Medical Journal*.

The Late Dr. George A. Peters.—At a meeting of the board of trustees of the New York Physicians' Mutual Aid Association held on December 11th the undersigned committee was appointed to formulate and publish appropriate expressions of sorrow on the death of Dr. George A. Peters. In accordance with this authorization the following preamble and resolutions were adopted:

Whereas, This board of trustees has learned of the recent demise of Dr. George A. Peters, who was for many years a member of the association and of the board of trustees, and for five years its president, taking at all times a deep interest in its success and welfare: therefore

Resolved, That this board herewith places on record its profound sense of loss to the board, to the association, and to the profession in the death of one of its most honored ex-presidents.

Resolved, That this board extends its sincere sympathy and condolence to his only child, Mrs. H. H. Chittenden.

Resolved, That these resolutions, signed by the president and secretary, and by the committee, be published in the *New York Medical Journal* and the *Medical Record*.

[Signed.] DANIEL LEWIS, *President*.

JAMES E. H. NICHOLS, *Secretary*.

M. BLUMENTHAL,

DAVID MAGIE,

CHARLES E. HACKLEY,

} *Committee on Resolutions.*

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FRANK P. FOSTER, M.D.

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